

APPLIED DRAWING



PICTORIAL
DECORATIVE
MECHANICAL



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APPLIED DRAWING

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RAYMOND ENSIGN



1916
CHICAGO

ATKINSON, MENTZER & COMPANY

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DOORWAY OF THE ERECHTHEUM, ATHENS, 408 B. C. AN
EXAMPLE OF BEAUTIFUL SPACING AND RESERVED DEC-
ORATION.

INTRODUCTION

A clear idea as to the purposes of the study of art is important. The idea prevalent a generation and more ago, included nothing more than the achievement of technical skill. This view has now broadened to include a type of art education adapted to the needs of the great majority of people who will not follow the arts professionally, but who may and, for their own distinct benefit, should acquire through various art problems a finer taste and a deeper capacity for the appreciation of beautiful things. Neither of these two aims should be forgotten. Progress in any line cannot be made without a real underlying and lasting interest and pleasure in the subject on the part of the student. With such an interest, however, very creditable results can be achieved even by those of modest ability. Interest in art may frequently be aroused when dormant by the proper appeal to the student through pointing out the connection of this or that phase of the subject to immediate conditions, or the very human interest in art with every people in the past as well as today. A thoughtful consideration of what modern life would be if every particle of art were banished will often prove a surprise to many. Such an imaginary banishment must include every line, groove or moulding, every curve or form, however slight, which is not practically needed, whose object is solely an improvement of appearance. The moment an object of any kind or size is treated beyond the point of barest utility it has acquired an element of art.

With a conviction of the utter helplessness of humanity without art, it seems impossible not to feel an interest in it, and it is hoped that even the lukewarm student may grow in enthusiasm as he progresses in his study.

This book is the result of the belief on the part of the authors and publishers that a clear presentation of problems covering many phases of applied drawing, well and copiously illustrated, would prove of real value at the present time. The problems will be found adaptable to the needs of students with aver-

age elementary training, looking either to the attainment of aesthetic appreciation or technical skill. Four main divisions of art study are covered, Design, Representation, Art Appreciation and Mechanical Drawing. The courses, problems and illustrations offered are the results of many years of class room and studio experience on the part of the authors with students of varied ages, talents and aims.

The reading matter of the book is reduced to as small a compass as possible with clearness while the illustrations are as numerous as necessary limits would permit. Almost every plate may be taken as a starting point of a large number of problems. The text adjoining most of the plates offers suggestions for many varied experiments. Rearrangement of the material and problems, here suggested, into courses to fit many varied conditions and needs, is not only possible but advisable.

Illustrative material is a prime necessity in art instruction, and the student should have as wide a field of such material to refer to and study from as possible. To this end the illustrations in this volume should be augmented by other volumes, plates, photographs, and actual objects of all kinds. The farther the pupil from good libraries and especially art museums, the harder is the problem. The book-list on page 264 will assist in the choice of helpful volumes, but even in their absence, it is hoped and believed that this book alone will do much for an intelligent and earnest student in the field of practical drawing and aesthetic training.



MATERIALS AND METHODS

CHARCOAL

Charcoal is one of the most useful mediums of the art-student and artist. The fact that it can be treated in a very slovenly manner has often caused it to be banished unjustly.

Charcoal is essentially a medium for the rendering of values, not lines. One should therefore always use it with this end in view. A kneaded eraser, sponge rubber or "art-gum" is a very necessary adjunct in this medium.

Charcoal may be worked with the point, carrying the shading gradually to completion, or it may be applied entirely over the surface of the drawing and rubbed down to a uniform gray with the ball of the thumb or a chamois, on which may be added the darks and from which the lights may be lifted with a kneaded rubber. In the absence of such a rubber the soft portion of a piece of stale bread may be worked in the fingers to a point or edge and serve excellently for this purpose.

Attempts to rub charcoal vigorously with stumps should be avoided. The texture and surface of the paper are ruined and the quality and tone of the charcoal become bronzey and unpleasant. Stumps may be used at times, but with very light pressure. Another aid which gives excellent effects is a flat bristle oil painting brush which, when lightly dragged over charcoal surfaces, tones them together most happily. Experiment and practice alone can give satisfactory understanding of these methods. A piece of sandpaper is necessary for the sharpening of charcoal. The dust from such sharpening can often be used on the drawing by application in desired places with the finger, a bit of chamois or cloth, stump or bristle brush.

Charcoal drawings when completed must be "fixed" to prevent rubbing by being sprayed with fixatif through an atomizer.

CRAYON

In the use of crayon it is best to avoid rubbing the tones. In drawings from objects the point may be used and the values represented in as nearly flat tones as possible, avoiding cross-

hatching or overlaid strokes in opposite directions. When using crayon in design a loose treatment is preferable, in which the paper is permitted to show between the strokes. Beautiful color is frequently obtained by over-laying one tone upon another by strokes in the same direction, also allowing the background color to show uniformly in minute particles.

Textures of rugs, embroideries and other textiles are frequently well interpreted by such crayon methods. Naturally the surface of the paper is an important factor in the success of any technic and only paper of proper "tooth" or roughness, as well as desirable color for the work in hand is appropriate. One should experiment with available kinds and colors of paper, whether made for drawing purposes or not, testing their value as to surface and color. Many an unexpected and happy discovery results.

PEN AND INK

Pen and ink is a medium which is enticing, though discouraging, to many a beginner and amateur. The difficulties are somewhat diminished if care is taken as to materials. These should be as follows:

Bristol board must be of the very best quality. Anything less than this means incessant annoyance if not frequent failure through catching of the pen point and a possible spreading of the width of line, especially if corrections are attempted by scratching. Before buying bristol board it is well to procure small samples of different makes and try each surface with different pens. The surface of each sample should be scratched with a sharp knife, as in erasing errors, and new lines tested on the scratched surface. This test is important, as not infrequently such corrections have to be made, and an under-surface which is absorbent or fuzzy practically renders that brand of bristol board worthless for fine work.

Pens may be coarse or fine as the taste and work indicate. For fine pens the Gillott 170, 290, 291, and mapping pens are excellent. Common brands of writing pens are frequently used by artists who find by experience their favorites. In decorative work coarser lines may be made with the ball or round pointed pen and by pens of special type, see pages 107, 109.

The ink, which many years ago was always made by tedious hand-grinding of hard sticks of Chinese ink in an ink-saucer, is

now easily procured by the bottle at almost any stationers. Use no ink for regular pen and ink drawing other than jet black India ink made by a firm of reputation. Writing ink is never satisfactory. Various good brands of India drawing ink are on the market that can be tried out by the student. For any drawing that may be subjected to surface moisture or to applied water color washes, a waterproof ink must be used.

Very soft rubber, such as the sponge or art gum, should be used for cleaning a pen drawing, as the ink will be grayed by the friction of a stiff rubber.

WATER COLOR

Water colors may be procured almost everywhere at the present day. The cheap boxes for the public schools are very serviceable, and excellent work can be produced with them. More satisfactory results, of course, come from colors of better quality and possibly greater variety, but some of the best water color painters limit their colors to three, a red, blue and yellow, while few good painters use more than seven. More than this number leads to confusion and muddiness.

The choice between tubes and pans of water colors can be best decided by experiment and experience. Each form has advantages and disadvantages. Brushes frequently come with boxes of colors. These likewise answer the beginner's requirements. Fine brushes are expensive, but they are also very durable. When buying a water color brush, test it by dipping it in water and striking the metal ferrule quickly against your finger to shake the surplus water from the hairs. A poor brush will split into two or more points—a good one will come to a single fine point.

The first essential in the proper working of water color is ability to lay a flat wash. To accomplish this satisfactorily, have the paper fastened securely to a drawing board by thumb tacks or by being stretched upon the board. If one prefers, a pad or block of several sheets of paper may be used. Remember first of all that you are using water color, and that water cannot satisfactorily be pushed up hill. Your paper, therefore, must be held slightly slanting toward you, that the wash of color shall easily be led downward. If the paper be perfectly level or lower at the top end, it will be next to impossible to guide the flow of the wash.

An ample supply of clean water is necessary. When the water in your glass or bowl becomes badly discolored, renew it in order to preserve the purity of your colors.

Enough liquid color amply to cover the desired surface must be mixed in the hollow cover of your color box or in your saucer before a wash is attempted. This is imperative. Stopping to mix new color in the middle of a flat wash is ruinous. Never use color for a wash direct from the pan or cake to the paper. Modify it by mixture with more or less water, and if necessary, with other colors in your saucer or cover. A master may occasionally modify this rule, but the beginner should not. Begin a wash at the top of your paper. Fill your brush as full of the color you have mixed for the purpose as it will hold without dripping. Paint a horizontal band of color across the paper. Make the top and ends even. The lower edge of this band should be a small river of color. Refill your brush with more color from the saucer and make a second horizontal stroke, just touching the river of wet color above which will at once flow down and make a smooth union with the new stroke. Both ends of this new band should be made vertical and even with that above. Again refill the brush from the color in the saucer and repeat with a third band with which the second wet line of color should smoothly join. The surplus of the last band of color at the bottom of the wash may be picked up by rinsing and drying your brush on cloth or blotter and passing it gently along the edge of the surplus color. This process, carefully followed and repeatedly practiced, will give perfect washes. Never attempt to correct an error in a wash while it is wet, for in so doing you will merely aggravate the trouble. Let it dry first. Frequently the apparent trouble becomes almost or quite invisible when dry.

Gradations in water colors are produced by the addition, while working, of more or less color or water, or of different colors. Gradations and corrections in water color are difficult to explain briefly in type. The student best learns them through observation of a good art teacher or from the study of a more lengthy treatise of this specialty.

Another method of laying water color consists in painting an entire sheet of paper from edge to edge for the purposes of a uniform background tone. This may be accomplished by mixing as before a sufficient amount of color desired for the surface. The paper, of good quality, should be thoroughly moistened on both sides under the faucet, and surplus water removed by a

blotter. The paper will now lie flat on a board. The wash may now be laid as before described, but preferably, in this case, with a flat bristle oil painting brush. The larger this brush the better the wash will be, if not inconsistent with the area to be covered.

Upon reaching the end of the sheet the wash is not stopped as in the previous method. The sheet, still wet, is turned sideways and brushed in that direction. Usually more color does not need to be added. When the surface has been covered thus, the sheet is turned again and brushed as at first. This process, repeated many times until the paper is nearly dry, works the color thoroughly into the pores of the paper and finally gives an attractive granular or woven texture that makes an excellent background surface.

The use of opaque water colors has greatly increased recently. These colors are especially useful to designers, and may now be had in tubes or bottles. A decade or more ago it was necessary for the artist to grind them. One opaque color may be applied over another without the under color showing. They also may be used on dark or colored backgrounds with excellent effect. They are the logical materials for commercial art.

TRACING

Tracing is a legitimate aid in design at certain times and under certain conditions. In order to be of use it must be carefully done. Careless tracing means serious danger to the work. Do not be deceived by the thought that hastily tracing over good lines will produce lines equally good. You must be as accurate in your tracing as though you were making the original drawing.

To transfer a tracing to another surface one must decide whether it is essential that the transfer face the same way as the original. A tracing laid face down is reversed in direction. If this makes no difference the transfer may be effected by rubbing the back of the tracing paper with the bowl of a spoon, the blade of a palette or pocket-knife, or with a lead pencil. Considerable pressure is required. The paper must be held so as not to slip, and the rubbing done in one direction only—not back and forth. If the tracing be made in soft or medium pencil, it will transfer well. For a transfer which faces the same way as the original it is necessary to rub a tone of soft lead pencil on the back of the tracing. This will act as a transfer-paper and make a clear impression when the lines on the front side are gone over. Carbon

and transfer papers are not good, as the transfer is effected through a greasy ink that cannot be erased later. In complicated designs with repeated right and left sides, one may often trace but one half and repeat twice elsewhere by using each of the two methods just explained. Good tracings can be transferred many times if care is taken that the paper be not cut or worn through.

STENCILING

Prepared stencil paper may be purchased at art material stores. Stencils may be cut, however, from any strong, tough paper. The paper must be made moisture proof by one or two coats of shellac. The need and proper placing of the "ties," or small connecting bands of the stencil, is explained in the design problems. Stencil brushes should have short, rather stiff bristles. Oil painting brushes will answer if regular stencil brushes are not procurable. Water color or other soft brushes are of little use for this purpose. Stenciling may be done with tempera or opaque water color just described or with water color mixed with Chinese white. Interesting results may be thus obtained on different materials but the result is in danger from contact with moisture. Washable stenciling may be accomplished by using artist's tube oil-colors. Some of the tones desired may be squeezed on the edge of a plain white china plate. A little benzine or gasoline should be poured in the center of the plate. Turpentine may also be sparingly used. The stencil brush should be moistened in the liquid and a little of the color picked up with the brush and spat on the plate to even it in the brush. Spat it on a waste piece of cloth to absorb excess of fluid, which should be plentiful enough to spread the color well but not to allow spreading under the stencil edges. Spatting vertically downward is preferable to painting crosswise over the stencil opening. A stencil should be very carefully lifted to avoid any dragging or blotting of the wet pattern, and should have any excess paint wiped off before the next application. Stencils cannot be handled roughly.

A fabric to be stenciled should be stretched flatly over as large a board or table as practicable and held by thumb tacks. The line of repetition of the stencil unit first should be carefully determined and shown by a tightly stretched thread over the surface of the goods. The spacing of the units may be accurately guided by inserting vertical pins along the thread at desired intervals. The stencil should then fit similarly over each pin as the work proceeds.

Textiles stencilled with oil colors or with certain kinds of dyes may be safely washed if care is exercised.

Stencilling by spraying the color with an atomizer is used frequently with good effect. Liquid waterproof dyes and special spraying apparatus are needed for this.

Interesting results in two or more colors are produced by combination stencils. A separate stencil must be cut for each color. When these are used in succession and properly placed the complete pattern in colors is formed. Different colors may be used on one stencil with care. Stencilling is often rendered more attractive by touches of embroidery. This must be done with considerable thought and reserve or it becomes unpleasantly ornate.

BLOCK PRINTING

Designs of not too elaborate detail may be transferred to smooth surfaced wood blocks about one inch thick. The blank parts of the design may be carefully cut away, leaving hollows. The remaining portions constitute the design and when inked or painted will act as a type from which successive prints may be made. Very careful carving of the design is necessary. Linoleum, glued to the face of the block makes a good surface upon which to transfer and cut the design. It offers much less resistance and fewer difficulties than wood.

Printing from wood blocks is accomplished by painting the raised part of the block carefully with a thin layer of oil or tempera water color about the consistency of thick cream. Oil colors may be thinned with turpentine or gasoline. Do not use enough color to permit it to spread on the printed surface. The paper or cloth to receive the impression should have several layers of blotting paper beneath it. Careful arrangements should be made for exactly locating the impression each time. Firm, steady pressure on the block is necessary for a clear impression. Occasionally a few taps of a small mallet or hammer may aid.

More than one color may be printed from one block by carefully painting it for each impression. Two or more blocks which fit in successive impressions, each painted for a separate color, may also be used in combination.

TESTS IN APPEARANCE DRAWING

The best test in drawing is a highly trained eye. Other tests are but poor substitutes. Endeavor constantly therefore to train the eye that it may serve you with accuracy. All drawings should be plotted at first with eye judgment alone.

People are variously gifted as to degrees of accuracy of sight, and the acquisition of such power comes more or less quickly. Tests are merely steps toward such acquisition. Several tests are described in the following paragraphs.

The Transparent Slate. One of the best and most rapid methods of visual training is by the use of a transparent glass slate, which, when backed by a white card, may be drawn upon with a special pencil. The object or group is sketched directly upon the glass without tests. The result is judged by removing the cardboard back of the slate and observing how closely the lines of the drawing upon the glass fit the edges of the objects seen through it.

The Pencil. Proportions may be tested and compared with reasonable accuracy by checking their apparent sizes upon a pencil invariably held at arm's length.

Place a full length pencil near its end against the inner sides of the first, second and little fingers. Bring the fourth finger in front of the pencil. The pencil will be held firmly and one half will be left free upon which the thumb may slide. The apparent size of any part of an object may be taken on this pencil by bringing it at arms' length into the line of sight. The tip of the pencil should appear to touch one end of the object to be tested and the thumb slid along until it checks upon the pencil the other end. One eye only may be used in this and most other tests. The distance thus recorded on the pencil is for comparison only. Do not even transfer it to the paper. Holding the pencil at full arms' length, with the thumb still checking the first tested distance, apply it to another part of the object. The relation of sizes may be clearly seen and compared. Smaller sizes should always be compared to larger ones. A small size must be stepped along as accurately as possible to note the number of times it may be contained in the larger.

This transparent slate may be purchased from its inventor, Anson K. Cross, of the Massachusetts Normal Art School, Boston.

The Finder Card: Provide a card $4 \times 5\frac{1}{2}$ inches. Cut out an oblong opening $2 \times 2\frac{3}{4}$ inches, thus making a frame. Divide the inner edges of this frame into quarters. Mark these quarters distinctly.

The finder card is used as a frame through which whatever is to be drawn may be seen. It should be tried and moved about to such a position that the eye sees exactly the arrangement and limits of the composition desired. The quarter divisions aid one in comparing and locating the many points in the picture, an oblong of the same proportions but of a larger size with quarter divisions having been sketched on one's paper as a margin line.

The Plumbline: A string 15 to 24 inches long with a small weight at the end is helpful in comparing verticals with oblique lines and in locating points in a subject which lie approximately in a vertical line. It is to be suspended from the left hand so that the string appears to cut a desired part of the subject.

The Thread: This has a somewhat similar use to the plumb-line. It should be stretched between the extended hands apparently to connect any two desired points in the subject. The thread will appear as an oblique line crossing other parts. Its slant may be noted and compared with the position of corresponding points in the drawing. Both hands must be the same distance from the eye and the thread perpendicular to the imaginary line from the eye to the subject.

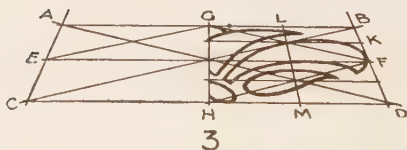
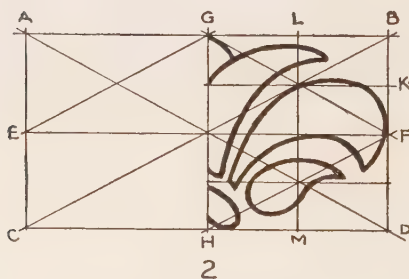
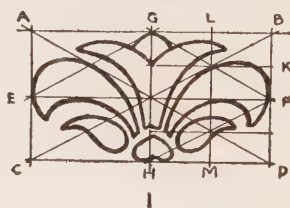
The Pencil; Directions: The pencil may also be used to test the direction of lines and edges. It is held at arms' length and must be observed with one eye only. Only the end of the pencil is held and no thumb measurements are to be used. Keeping the pencil perpendicular to the direction of sight it is tilted to the right or left to appear to fit the desired line or edge. When so adjusted it is best to bring one's drawing up behind it, thus comparing the edge to be tested. The arm may be very carefully lowered to the drawing for this test but there is great danger of the slant being changed and the test thus rendered useless.

Under no conditions may the pencil be pointed forward in such tests. The pencil then becomes a retreating foreshortened object of no value as a test. It must lay, as it were, against a glass window perpendicular between the artist and his subject. upon this glass pane it may take any slant to the right or left, but never may its end be thrust forward.

Two Joined Straight Edges: Angles may be proven in appearance drawing by the use of two straight edges of card,

wood or metal, just thick enough not to bend. They may be fastened together at one end to open and close as a pocket-knife, or be held at their corners between the thumb and finger. Here also neither card must point forward but both must lie against the imaginary glass pane just described. With one eye shut the cards may be adjusted to appear to fit exactly any angle in an object or group. Holding this angle they then may be applied to the angle attempted in the drawing.

The Adjustable Finder: An ordinary finder is a card with an oblong opening. An adjustable finder may be made by cutting two cards in the shape of an L. These may overlap in opposite directions to form a frame whose size and proportions may be varied. By dividing the inner edges of these angle cards into quarter or half-inch divisions beginning at the inner corner convenient points for various comparisons will be available.



THE RECTANGULAR NETWORK AS
AN AID IN DRAWING. SEE PAGE 77.

DESIGN

The subject of design is divided into two general classes, design in the round and design in the flat. The former is design in three dimensions, the latter in two dimensions. The first applies to real objects, the second to surfaces of objects.

Design in its fullest sense serves two purposes: It produces an article of use and at the same time strives to make it as beautiful as possible.

Each of these functions of use and beauty are subject to three principles.

USE. The three important principles governing the use of an object are:

1. The form of an object should reveal and emphasize its purpose. Never should it conceal or disguise it.

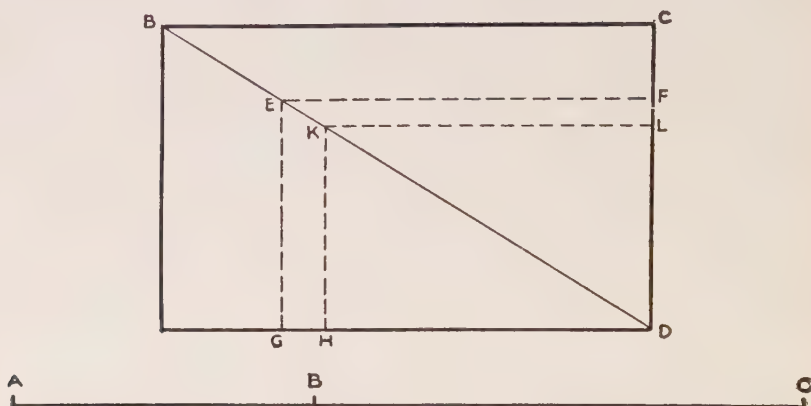
2. The material composing an object should be that most suitable for its use. The peculiarities and characteristics of this material should never masquerade as another material.

3. The construction should be honest, clearly showing without disguise the tool and process.

Apparently obvious as these principles are, their violation is an every day matter. The student of design cannot be too alert to note the presence or absence of them in objects claiming excellence of design.

BEAUTY. Under this head we must consider: 1. Proportion, or the relation of sizes; 2. Contour, or the relation of shapes; 3. Tone, or the relation of neutral values and of colors.

1. Proportion means a relationship between the measures of different parts of a whole. No one element of beauty is more important, nor is there a subject upon which has been devoted more effort in the search for guiding principles. Each age of the world has had its canons and theories of art measurements that were supposed to guide to success the designers of that epoch. A very brief statement of a general law of proportion would seem to be almost impossible, yet analysis of a large number of objects, covering many fields and many ages, leads to a conclusion that the approximate ratio of two parts to three is one of wide and useful application. There is a so-called "Greek Division of Space" which specifies "more than one-half but less than two-thirds." Again we have the ratio known as the "golden oblong" or the mean and extreme ratio.



THE GOLDEN OBLONG

The golden or ideal oblong is built upon proportions to which mathematicians give the term of mean and extreme ratio. In the above line A C the ratio of A B to B C is as the ratio of B C to A C. If the line were divided into 100 parts such a division would very nearly approximate the proportion of 38 to 62. The ratios of 5 to 8 and 2 to 3 are both close to this extreme and mean ratio and give the designer great help in deciding the large proportions or subdivisions of any problem.

The diagonal of any rectangle, as B D, can be used to locate corners of any other rectangles of different size which it may be desired to make of the same proportions as the first, as G E F D and H K L D. This rule has wide practical applications, in the enlargement or reduction of drawings for photo-engraving or other reproduction and in other ways.

Where delicate proportions are desirable, as is more frequently the case than otherwise, an application of one of these ratios—the Greek division, between a half and a third, the golden oblong, or the ratio of two parts to three—will help wonderfully toward a solving of the problem. Where smaller divisions are required after the more prominent spaces are plotted, a further subdivision using the same ratio throughout the design should be the rule.

This ratio of two to three is, of course, not the only one resulting in beauty, nor does the use alone of any ratio bring satisfactory results. The happy combination of several factors are essential for that, guided by that indispensable thing called Taste which is to some extent inherent, but may, to a large extent, be trained.

2. Contour, or the relation of shapes, shows us the form of an object. It is its defining outline or visible edge. Such edges may be composed of straight and curved lines. The qualities and directions of these lines, and their combinations convey different distinct emotions. The horizontal line suggests repose, silence, inertness. The vertical gives the impression of uplift, life, vigor. Obliquity suggests motion of greater or less degree. The curves include the circle, ellipse, oval, spiral, their parts and combinations. Contour is treated elsewhere in connection with Plates 47, 117, 119, 121.

3. Tone refers to the neutral values or to colors of an object. Beauty is absolutely dependent upon tone. The study of tone or color has received great impetus in recent years and many errors of former systems of color teaching have apparently been corrected. As with proportion and contour, sensitive appreciation comes with years of study and experiment. Refinement of the color sense can not come without long effort. See page 191.

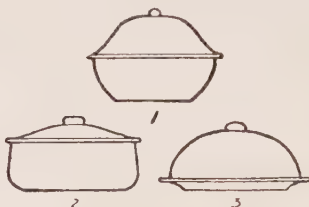
DOMINANCE

Before considering any of the separate principles of design it is necessary to realize the importance of the law of Dominance. This means that every design must possess a leading, dominating idea usually shown in a dominant shape and size of some part of the particular object or decoration in hand. This rule is universally applicable. This leading idea should be clearly evident to the person viewing the object; other parts must be subordinated. Successful design always illustrates this rule. Whatever the object, the mind and eye demands the satisfaction which comes from a realization, conscious or not, of a leading, controlling feature. A confusion or rivalry among parts always results in failure. In the two highboys on Page 16 one has two parts of about equal size and interest, while the other has a distinct dominance of the upper part to the great improvement of the piece. The same is true in the covered dish, Page 16. In 1, the dish and cover of equal size are very unpleasant. In 2, the dish dominates; in 3, the cover dominates. Both of these forms could be of definite service and either is better than the first form with neither part dominant. In the same Plate, the equal divisions in a candlestick or moulding are unfortunate. One part should dominate. Examples of this law are infinite, both in

• DOMINANCE •



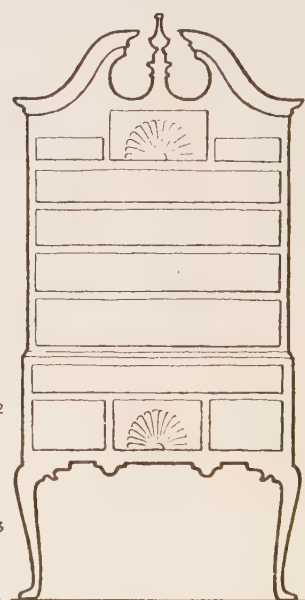
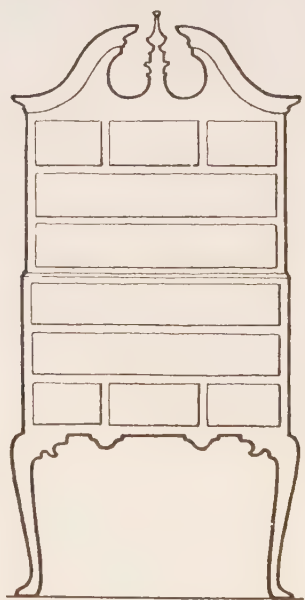
CANDLESTICKS.
1-BAD: NO DOMINANCE
2-GOOD: DOMINANCE
• WITH VARIETY •



COVERED DISHES.
1-BAD: NEITHER PART DOMINANT
2-GOOD: DISH DOMINANT
3-GOOD: COVER DOMINANT



MOULDINGS.
1-BAD: NO DOMINANCE
2-GOOD: DOMINANCE
• WITH VARIETY •



AN IMAGINARY HIGHBOY, SHOWING NO NOTION OF SPACING THROUGHOUT. THE PRINCIPLES OF DOMINANCE & RHYTHM ARE ENTIRELY IGNORED

AN ACTUAL HIGHBOY OF FINE DESIGN: #1 DOMINATES 2 & 3. #3 DOMINATES 2. DRAWERS IN #1 ARE IN RHYTHM; CARVED DRAWERS DOMINATE SMALLER DRAWERS

the large and in small details, for the law is equally applicable to the parts of forms, whether solids or surfaces, and to whole objects.

This law of dominance and subordination has, as has been said, universal application. It is acting jointly with other principles constantly. Other principles sometimes act separately from each other, but they cannot act without recognizing this law.

The principles which it is necessary to consider are Repetition, Rhythm, Balance and Harmony.

REPETITION

It needs almost no observation to notice that the principal of repetition is a most important factor in design. This repetition, however, must be governed by some rule of order. Disorder can never produce beauty. A very simple form though unattractive in itself can by orderly repetition appear pleasing and sometimes beautiful. Take for example a letter, I. This repeated at regular intervals gives us I I I I. The spacing may be more or less close with varying effect. The letters may be grouped, II II II or III III III. Any unit may be similarly treated.

If we introduce into this repetition a second element, that of alternation, we greatly increase our range. This alternation may take the form of a different grouping of the same succeeding figures as II III II III or II - II - II - II - . It may introduce an entirely new form into the succession as I O I O I O. These examples of repetition and alternation merely suggest some of the infinite possibilities in the line of borders.

Repetition occurs, however, in many other forms. By repeating any row of units or spots above and below itself, we immediately produce a surface decoration, which again may be infinitely varied by the spacing of these rows or by the introduction of alternating rows, or by the crossing of rows in a different direction.

Another example of repetition is observed in the reproducing of the same form on two sides of a symmetrical object. Countless examples of this exist in nature as well as in art. Again in nature do we get the repetition in varying sizes of her millions of forms of all kinds, to the unobserving, perhaps distributed haphazard, but to the searcher, obedient to rules of use and order. The leaves on a plant or tree are an example of this.

Three principles confront us in our effort to classify this idea of repetition. They are Harmony, Balance and Rhythm.

HARMONY. The principle of harmony is well nigh all inclusive, affecting alike forms or parts of forms in rhythm or in balance. Harmony is felt when two or more forms have some characteristic in common. The more this common element increases, the greater the harmony. If such an element exists equally in the different effects, we are in danger of producing monotony rather than harmony.

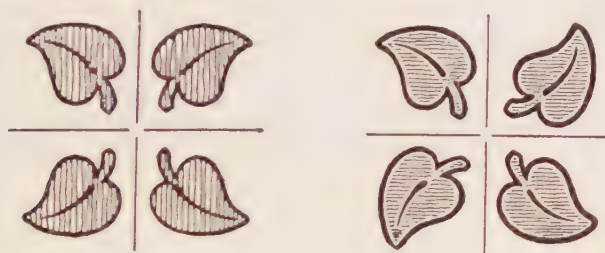
BALANCE means an opposition of equal forces. In recent books of design we have the distinction drawn between obvious balance and occult balance. Obvious balance means a balance which is clearly evident. Occult balance is that balance the cause of which is not clear, although a sense of repose may be clearly felt. We have perhaps the clearest examples of obvious balance in designs based upon symmetry or the repetition of the same form on the right and left of a central axis. Occult or obscure balance is seen in those groups of forms of unlike size or shape which by their arrangement do not follow a law of symmetry yet obey in their related positions a hidden law which gives to the composition a satisfying sense of repose.

RHYTHM. Rhythm may be defined as a sensation of consistent, orderly, accented motion. In a row of units of whatever sort our eye tends to roam from one end of the line to the other. If the units have no pronounced direction as this tendency in either direction is perhaps not strong. If, however, the units lean or point one way so that the eye is distinctly forced in that direction, / / / / / or $\nearrow \nearrow \nearrow \nearrow$, we have a sense of rhythm or orderly movement. Rhythm is shown in many other ways as one may see in the constant working of nature's laws. An orderly increase or decrease of measures or of colors always arouses this sense of motion and proves an element of beauty. The field of sound offers similar examples, though of a class that we need not more than mention. The rhythms of music, of concussion and of physical motion have ever fascinated alike the ignorant and the educated.

POSITIONS AND ATTITUDES

The positions taken by spots, units, or groups of spots collectively forming separate units have a very great deal to do with a decorative result. The attitude also decidedly affects it. By attitude we mean the direction taken by the unit in its relation to

the vertical. An examination of any of the designs through the book will demonstrate the importance of related positions of units in the scheme of any repeating design. The attitudes or directions possible for a unit are numberless. We may, however, show two sets of typical positions in the accompanying figures. In the first you will note that a unit may be reversed below, which we may call a simple inversion, and that this pair of units may then be reversed to the other side of the vertical, giving us a double inversion. In the other figure we have a unit repeated about a center but with each repetition making a quarter revolution. Both of these methods of repetition offer most interesting results. The history of ornament shows us very great numbers of examples in each class.



ABSTRACT DESIGN

All decorative design employs one or the other of two factors. It must use either abstract shapes, or forms conventionalized from nature. Both abstract and conventionalized forms are frequently used in the same design.

Abstract design depends upon the arrangement of lines and areas without resembling natural forms. Conventional design uses nature forms adapted by revision and the elimination of details to the needs of the specific object in hand. Both types of design are found in all styles and in every age of art history.

Abstract design has its origin, to a large extent, in the exhaustless field of geometry. Quantities of historic motives in every period come from this source and innumerable patterns in the classroom can be obtained by working over rectangular and triangular networks or within other geometric limits. Abstract units may be arrived at by arbitrary combinations of lines of varied shapes, or by cutting up larger forms into smaller interesting areas.

Natural forms or their parts frequently suggest abstract decorative shapes. Examples of this are curls of smoke, swirls of water, markings of wood and marble, wrinkling of bark and withered leaves, or the surface details of innumerable natural objects. Such forms may be adapted and used quite apart from the spirit of conventionalized ornament.

CONVENTIONALIZATION

In confronting the subject of conventionalization we meet a more difficult problem, yet one of the most important in dealing with successful decorative design.

Conventionalization is by no means a fixed or definite term. It applies alike to each of many degrees of decorative modification of nature. We may have merely approximate conventionalization where there is but slight departure from the pictorial, or the treatment may be most formal and rigid in which only the last essentials of growth and shape are arranged with severest symmetry. Between these extremes may be found all degrees of freedom or formality. Foreshortened forms and mixed combinations are frequent in many styles.

All of these difficult phases of ornament are quite beyond any but the most expert designers and not to be considered in high school work. There is no reason, however, why the simpler kinds of informal and formal conventionalization should not be understood and used by pupils.

Informal conventionalization refers to the use of the perspective appearance of a natural form for decorative purposes. The ornamental value of such an appearance is dependent upon the rejection of small details, refinement of forms, clear edges and flattened values and color.

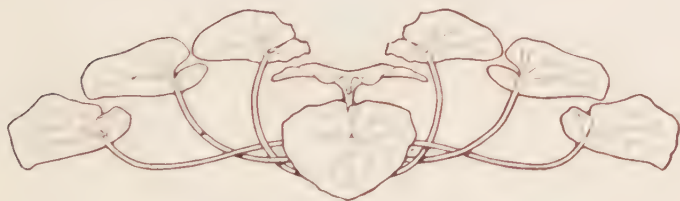
In the formal style the natural principles of form and growth are taken as a guide, and purely decorative shapes and arrangements are developed upon such principles.

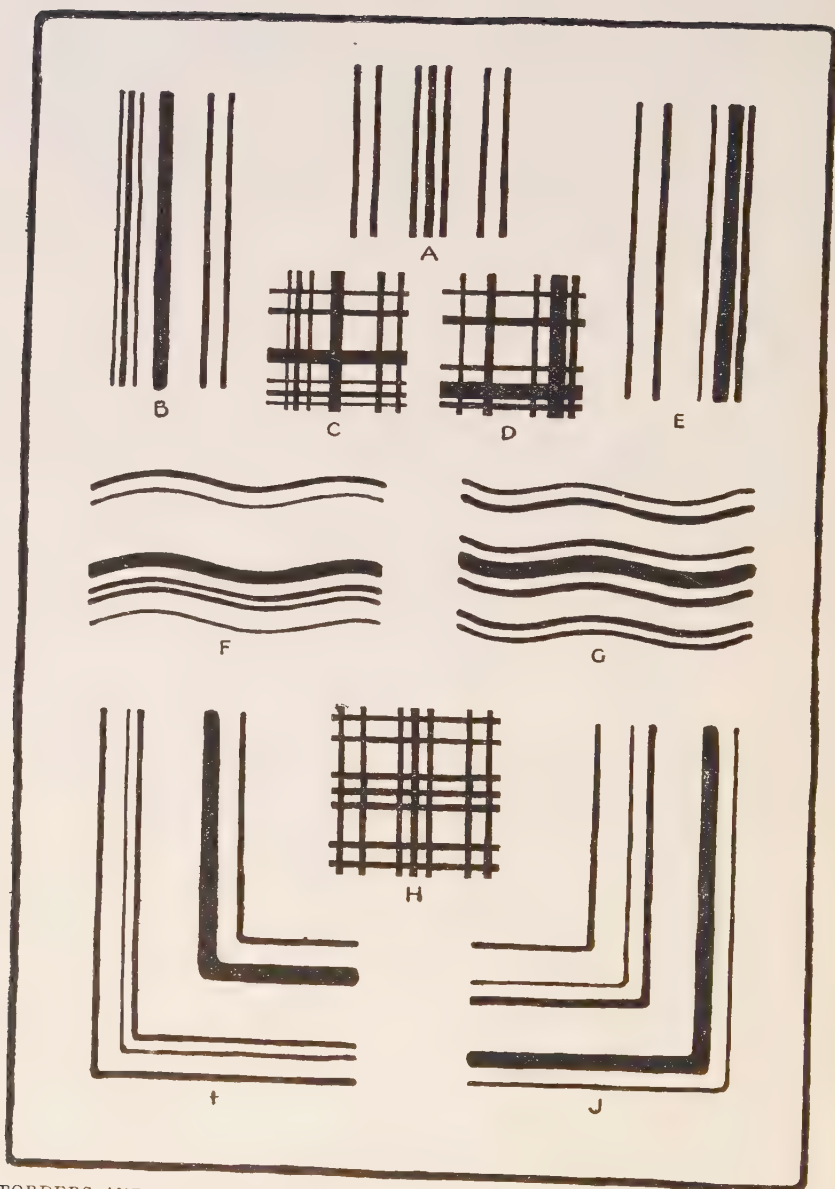
Exercises should be given in each of these modes. The informal method, being but slightly removed from the pictorial, is perhaps the easier of the two and needs less guidance except in choice of subject. In the more formal style the student should be taught to conventionalize a few basic types of flowers in top and side views, adapting such drawings to several different space limits. Different forms of common leaves should be similarly studied. Such exercise will give an appreciation of conventionalized ornament and develop some ability to produce it. Through-

out all design employing nature motives one is constantly confronted with conventionalized forms. An appreciation of the beauty of these forms in the best art is a source of keen delight. The development of such appreciative power is distinctly worthwhile and may best be accomplished by individual attempts at conventional ornament.

Both abstract and conventional design are governed by definite rules of order which are inviolate. The most comprehensive of these are harmony, balance, rhythm, dominance and subordination, as have been noted. These rules or principles of design should be studied at length by the teacher and their practical application to each immediate problem impressed upon the pupils.

The vital factor of order and system, dependent upon mathematics, is so important that it would be well if every designer, young or old, could be made to respect it. The finest creations in the history of decoration have obeyed the laws of geometry however shrouded such laws may have been. Only in art's decline do we find the designer throwing away in his conceit the very factor that would be his work's salvation.





BORDERS AND PLAIDS OF FREEHAND BRUSH LINES
SHOWING DOMINANT GROUPS AND SPACES.

GENERAL DESIGN PRINCIPLES

One of the simplest yet most important problems in decoration involves the use of parallel lines variously spaced. These lines may be of the same thickness or may vary in weight. This plate presents a few of the ways of approaching these problems.

For this work a bottle of India ink and a small brush are needed. The paper should be placed on a level rather than a slanting surface. The brush should be held in a vertical, not an oblique, position; papers and brush should thus be perpendicular to each other.

In making a line the brush should be as full of ink as possible without dripping. It should then be pressed on the paper to the width of line desired, and the line drawn by moving the hand and arm, not the fingers alone. This is invariably hard for a beginner, but should be practiced until control is acquired with various widths of lines. The length of line may be continued by resting at the end of a stroke and lifting the entire arm to a new position and continuing the stroke. Mechanical guides such as following the edge of the board or a ruler should not be indulged in.

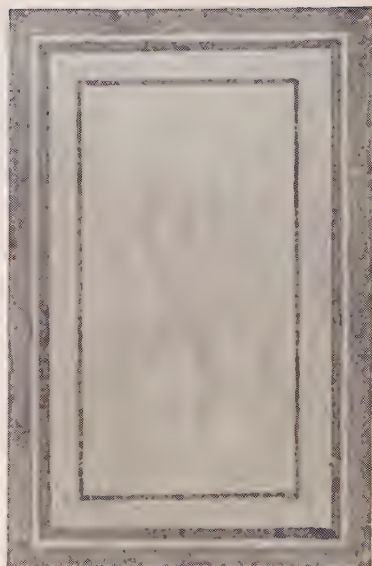
When a sufficient mastery of the brush has been attained, a group of lines may be tried. The grouping of these lines is an important part of the problem. For horizontal lines the hand should be moved to the right; vertical lines should be drawn toward the body, never pushed in the opposite direction.

In referring to the plate you will notice that in each group of lines some one line or group of lines and frequently some one space or pair of spaces is dominant in size. This is an important feature that must be insisted upon. It is a principle which exists in all good design. Be sure some line or space or both dominate in size and conspicuousness. Successful practice with these groups of lines may be followed by combining vertical and horizontal groups to turn a corner (i, j), by bands formed by curved lines (f, g), and by plaids (c, d, h).

The application of these problems is shown in the constant use of parallel bands, grooves and mouldings almost everywhere. The frontispiece beautifully illustrates such uses.



A



B



C



D

BORDERS OF PLAIN BANDS ILLUSTRATING AGREEABLE
SPACING AND PROPORTIONS AND A DOMINANT STRIPE IN
EACH BORDER.

Take a sheet of white paper about 12 by 18 inches. Draw on this sheet four rectangles each measuring $3\frac{3}{4}$ by $5\frac{3}{4}$ inches. Have a space of $\frac{1}{2}$ inch between each pair of them. Let these rectangles represent four plain rugs which are to have very simple borders composed of plain bands running around the edges of the rugs. Each rug must have three bands of different width. In each case one band must be clearly dominant in size. The edges of the bands must be parallel with the edges of the rugs. The center space of the rug should be the dominant feature of the rug and left perfectly plain. The problem in design consists in spacing these bands so as to get the most pleasing proportions and variety possible. There are to be no slanting or curved lines in any rug, or any breaks in the continuation of the lines. All work must be free hand absolutely.

When you have decided on the spacing of these lines, and have drawn them in satisfactorily, color each rug with water color, making the border different values from the body of the rug. The colors of any one rug should be variations of one tone and not a variety of colors.

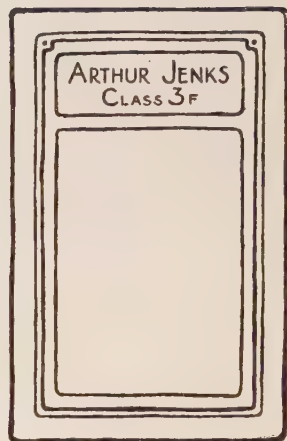
Interesting developments of the above problem are shown on Plates 26 and 27. Try on a fresh sheet of paper six corners for a rug which shall be composed of straight lines in only vertical and horizontal directions. These may be arranged in the form of steps or blocks, interlacing of lines, bands, or other forms. The designs should be extremely simple. After the modification of the corners, we may take the middle of the sides as the next point of possible change, if such seems desirable. Complete several borders of this type.

Borders formed of bands interrupted at regular intervals either by spaces or inserted forms lead to still other types in which the continuous line effects originally started with have entirely given way to a repetition of block units. These may be purely abstract in form or may suggest natural forms. The turning of the corners and the center of each side of the frame are always points of difficulty. In all work of this kind excellent assistance may be had by using squared paper beneath tissue or rice paper. The squares seen through the upper sheet soon suggest to an imaginative mind a multitude of interesting figures. The introduction of a well lettered title or name shows the use of this problem in simple cover designing, Plate 26.

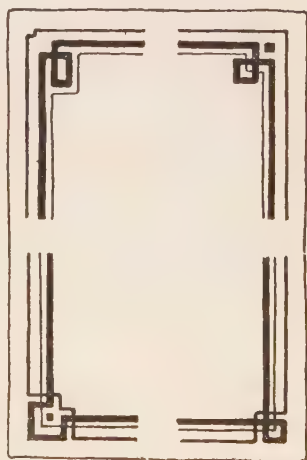
Plate 27 shows a varied set of problems, reviewing what has been suggested in the three previous plates.



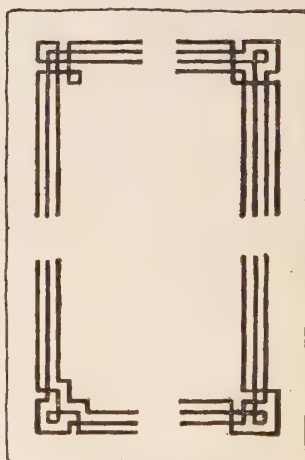
A



B



C



D

SIMPLE LINE BORDERS WITH CORNERS
VARIOUSLY ACCENTED.



A



B



C



D



SARUK RUG. COURTESY OF
PUSHMAN BROS., CHICAGO.

Good examples of Oriental rugs usually illustrate the principles of good design. The accompanying color plate shows this.

In many Oriental rugs, as here, it will be noticed, first, that the outside rectangular shape is emphasized in the repetition of its edges by parallel bands. These bands vary in width or conspicuousness. Some are plain and others are broken into a series of units of either an abstract or floral nature. Our preceding plates and problems have emphasized these features.

The corners of the rug receive attention next, each having a section set off within it, in this case of a form more or less triangular.

The center field is then treated with a medallion of some form, which usually has the ends of its axes parallel with the sides of the rug. These ends often project and are ornamented in some distinctly characteristic way. Within the medallion is variously decorated, sometimes with a smaller medallion.

Between the medallion and the outer borders is a repeating surface treatment. In this case the space is filled with conventional vines or flower sprays, far removed from pictorial accuracy.

The effect of the whole rug is flat. No attempt at realistic representation offends the eye. We do not tread on naturalistic pictures of landscape, flowers, or animals.

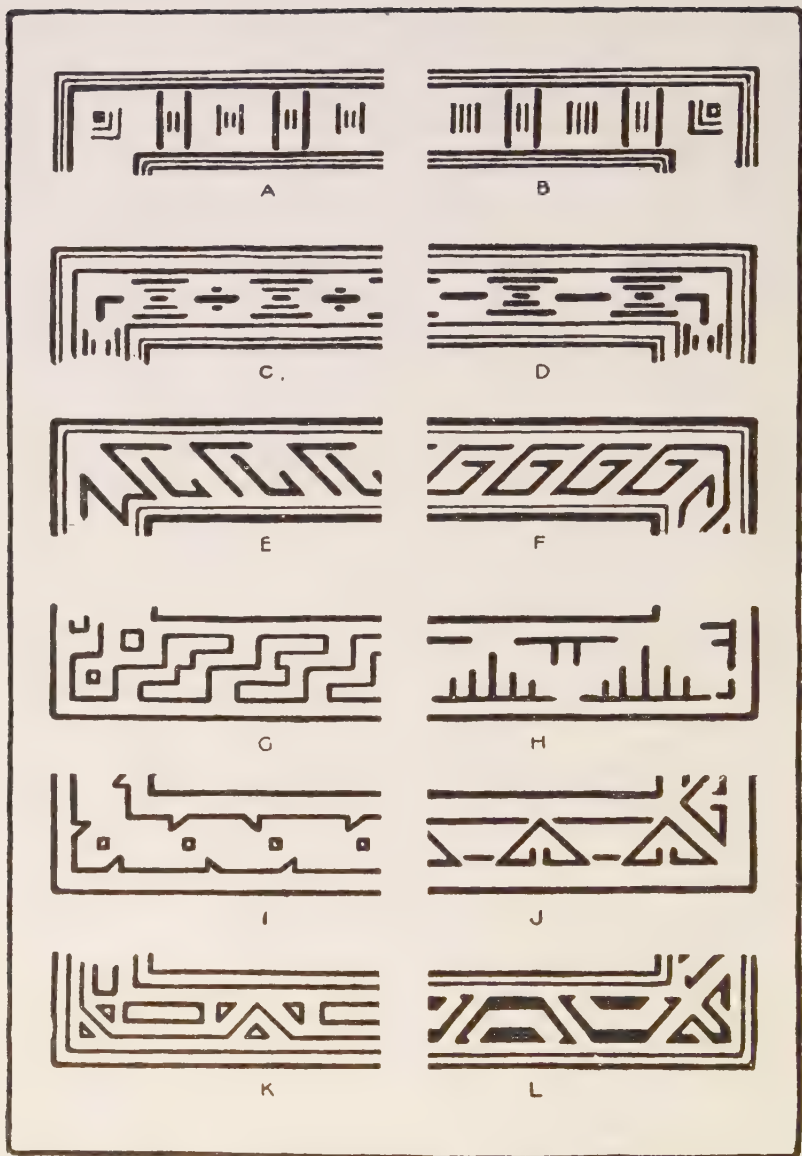
Colors, though varied and sometimes bright, are rarely other than rich and harmonious, and in the best specimens, wonderfully so.

Oriental rugs are classified in various ways. A geographic classification, according to Dr. G. Griffin Lewis, in his "Practical Book of Oriental Rugs" (Lippincott), is Persian, Turkish, Caucasian, Turkoman, Beluchistan and Chinese. Each of these classes has definite characteristics peculiar to the numerous villages or regions from which the rugs come.

Another classification would be according to their intended uses. Thus we have Grave Rugs, Hearth Rugs, Wedding or Dowry Rugs, Mosque Rugs, Prayer Rugs, Saddle Bags and Sample Corners. Each class offers a wide and fascinating field for study in design, symbolism, history, social customs and folk lore.

The design units found on the rugs are usually of symbolical origin. They are of great number and variety, the same type of unit appearing in many modified forms and among many different peoples. A large and varied collection of sketches of such units will be most useful to the design student.

Many Eastern rugs show an all-over pattern of larger or smaller units within the bordering bands, rather than a center medallion. In some types two or three large forms or medallions occupy the surface and frame smaller designs within their boundaries.

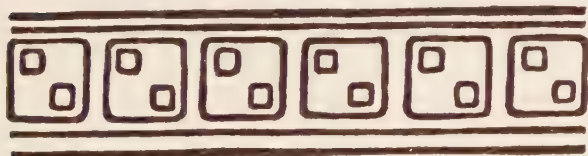
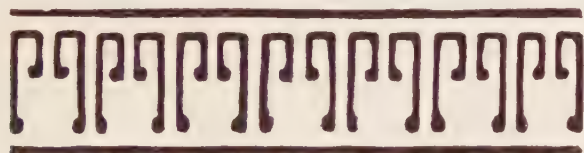


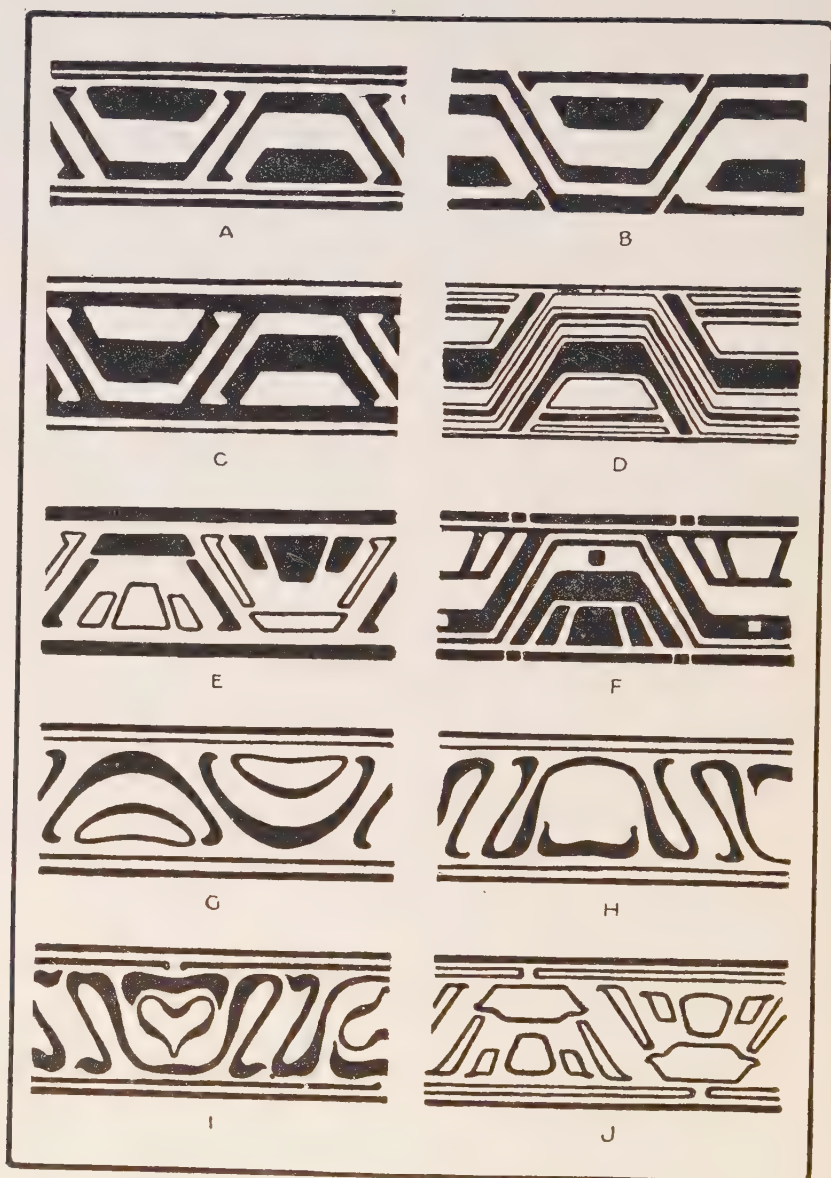
BORDERS OF ABSTRACT STRAIGHT LINE UNITS. A B C D,
LINES IN ONE DIRECTION; E F G H, TWO DIRECTIONS;
I J K L, THREE DIRECTIONS.

In our first problems we tested the value of borders composed of lines parallel to the edges along which they ran. Variety was gained through the dominance of one line or one space. The corners were the next point for experiment. Many of the most beautiful border treatments have consisted of nothing but carefully planned corner designs, joined by the plainest bands on the four sides. An added embellishment comes with the decoration of the middle of each side.

Further breaking up of a border brings us to a succession of units, either simple or complex. Plate 30 shows a series of exercises of a simple type, possessing, however, a number of chances for experiment.

A to D show us lines in one direction only (not including the edges of the border nor the turning at the corners in any case). E to H show us lines in two directions, while I to L employ three directions. Experiment with a number of original borders, setting yourself similar limitations. Endeavor in these borders to get a feeling of movement that is consistent and smooth, not jerky. In the combinations of three lines it is well to have the oblique lines in the direction forty-five degrees, or a half right angle.





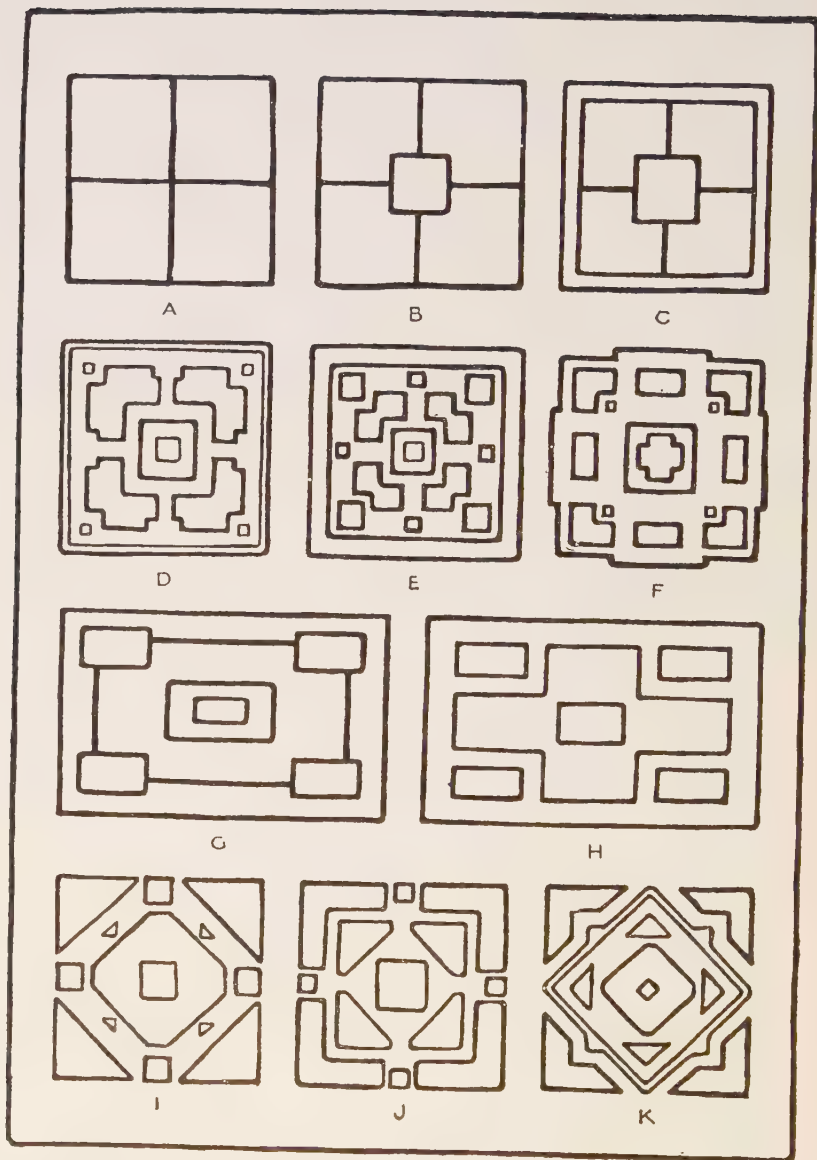
NINE VARIATIONS OF BORDER A. A TO F, STRAIGHT LINES,
G TO J, CURVED LINES.

In A will be found the last border of the preceding plate. Following this are variations worked upon the motives of this border, with more or less freedom. G to J have been treated with curves instead of the straight lines of the preceding designs.

It is by numerous experiments of this kind that the imagination may be trained and power of originality developed. Try a large number of similar experiments with one or two borders of your own making developed in the previous lesson.



In laying out a design it is well to prepare a framework or skeleton of light lines. The above are skeletons for borders based on different plans of floral growth.



RECTANGLES VARIOUSLY CUT TO FORM
DECORATIVE FIGURES.

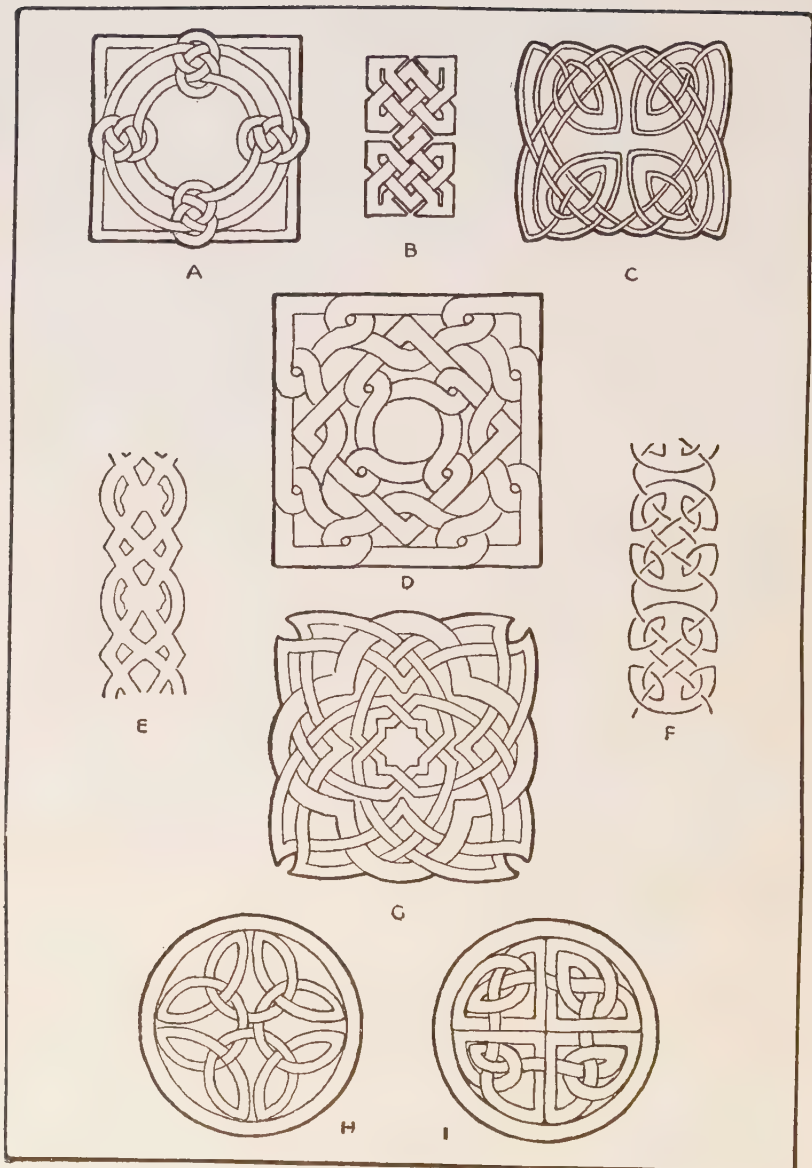
Draw several squares measuring three inches on each side. Plan them so that they are neatly spaced on your paper. Divide these squares by horizontal and vertical lines generally following the ideas shown in the adjoining plate, but changing these so that your designs are original. Your aim should be to make in each case a pleasing arrangement of lines and spaces and a figure suitable for possibly a tile, a carved or inlaid panel, or a unit that could be repeated any number of times for a border or a surface.

Draw this design absolutely free-hand, directly with the brush and ink. Make no preliminary pencil sketches but think out clearly what you want to do and then draw directly on the blank paper with the brush. If you do not succeed with the first effort, try until you do. Your lines should be thick and bold and not thin, scraggly, or wavering. A courageous, honest mistake is frequently better than a weak, hesitating effort.

When the ink lines are entirely dry on all of your designs, tint them with water color, using in some two or three tones of the same color in a single design, and in others several different colors in one design. Place your finished work on mounts against the wall and criticise and compare the results.

The illustration below represents a square type of decorative flower which has been obtained by slightly changing the original square design as just explained. Some of the lines have been made double with spaces in between. The corners have been rounded and certain small spots have been added. Take the square forms explained above and change each of them on a new piece of paper so that each represents a separate flower of some simple form which you can draw from your imagination. Put in as little detail as possible and try to represent no flower in particular, but simply a decorative floral form based upon the lines of the square.



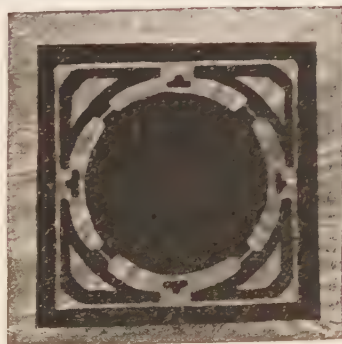
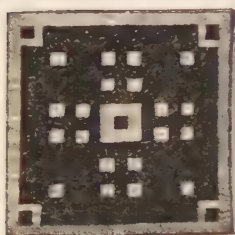
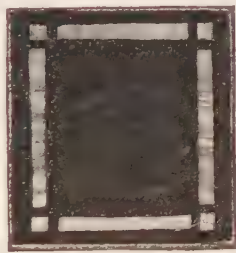


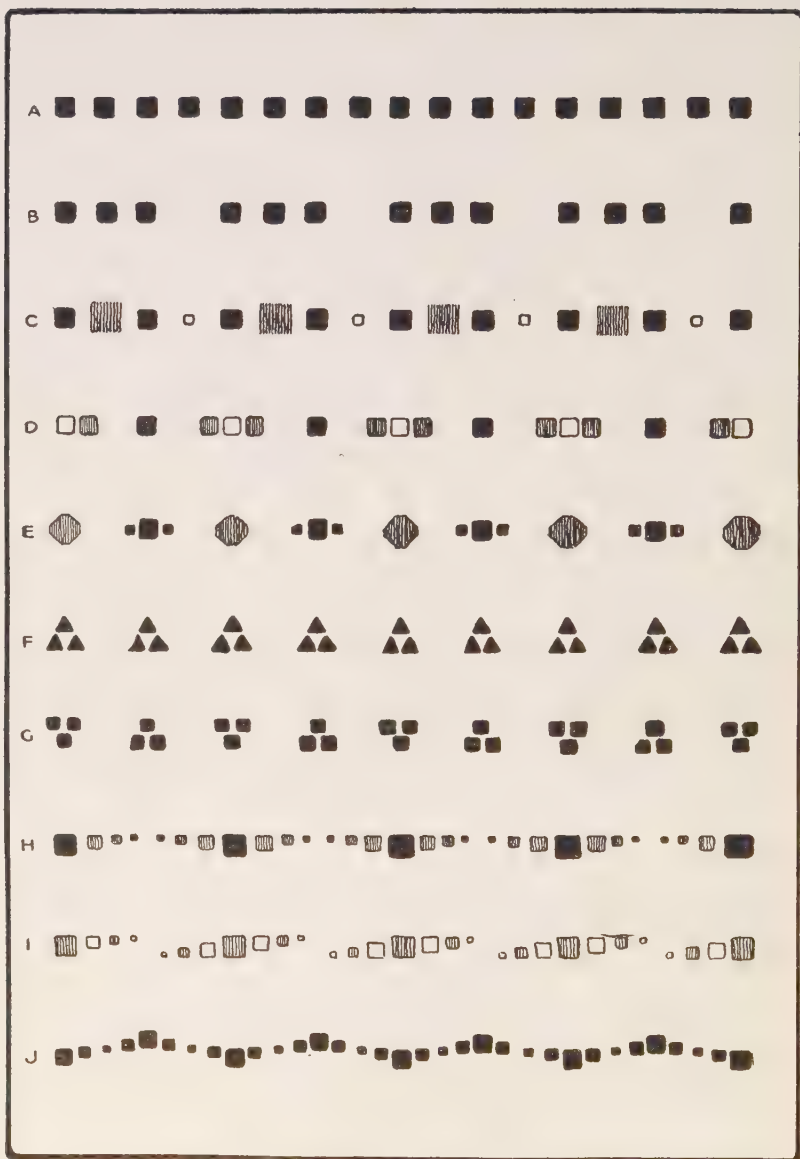
DECORATIVE FIGURES OF PLAIN
INTERLACED BANDS.

The problems of Plate 34 as well as those below and on the adjoining Plate are all equally adaptable to tiles or the decoration of other forms of limited size. They are less good for repetition as surface pattern. The designs below suggest the possibility of values in simple patterns rather than line.

Plate 36 introduces the almost limitless field of interlacing. This decorative motif has been present in several of the great historic styles of ornament and seems to lend a distinctly fascinating element to a design, though it may easily be carried to a point of tediousness.

It should be noticed that the interlacing always alternates in its weaving over and under. A distinctly uncomfortable effect is caused by a band failing to comply with this law of regular alternation. The examples given of borders will suggest other ways of using the weaving of lines. •





SOME POSSIBLE VARIATIONS IN
ROWS OF SMALL SPOTS.

Some of the possibilities of spots in orderly arrangement are shown in Plate 38. They may be classified as follows:

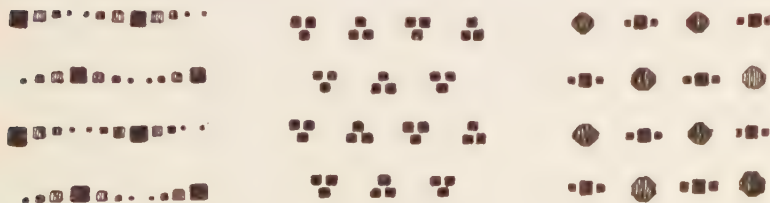
- A. Square spots occur in a regular order.
- B. The spots are in groups with larger spaces.
- C. The size and tone of the spots change regularly.
- D. The tone, grouping and spacing change regularly.
- E. The shape, tone, size, grouping and spacing change regularly.

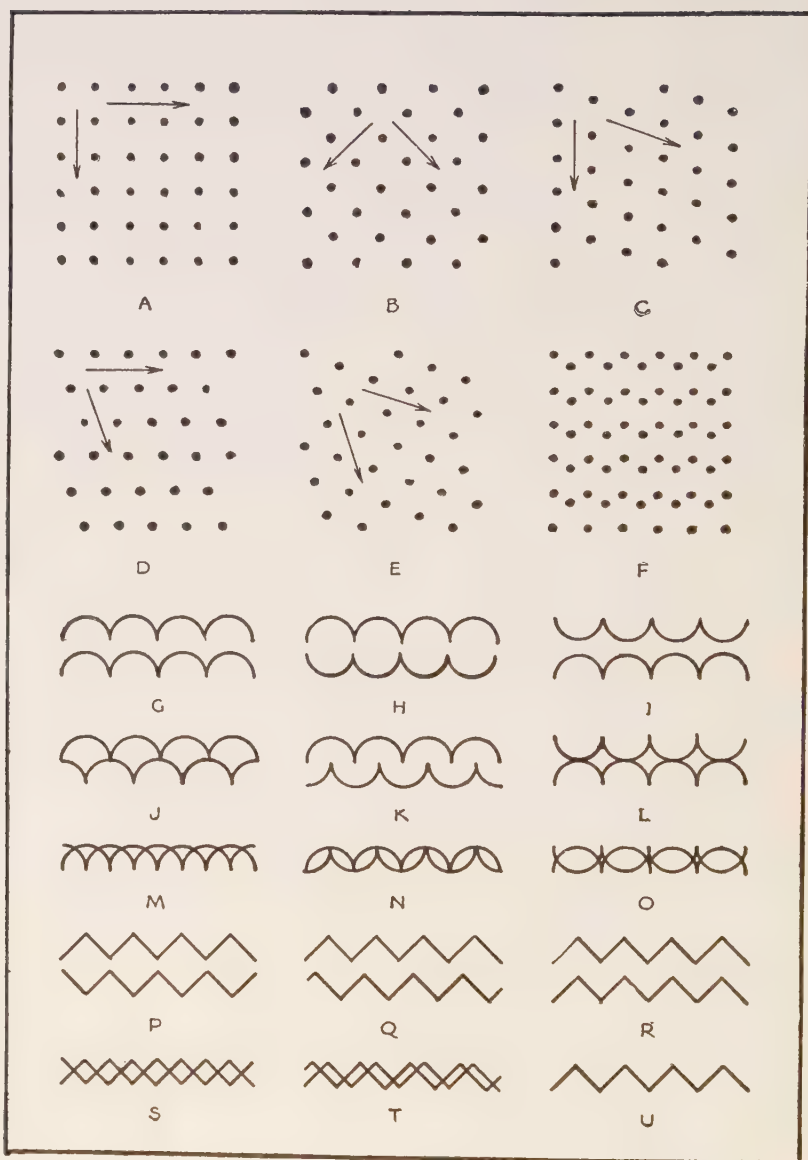
The remaining rows show other possibilities in the arrangements of simple spots. The student should make a number of personal experiments with this problem, with pen and brush, in ink and water color.

The addition of one or more continuous lines above and below any line of spots aids at once in the effect of a border.



Surface patterns are easily developed from rows of spots by successive orderly repetition of the rows one beneath the other. The examples below illustrate this. Laws governing several kinds of repetition are shown in Plate 40.





SIX METHODS OF SURFACE REPEATS, A TO F. FIFTEEN POSSIBLE RELATIONSHIPS OF SIMPLE LINES—AFTER J. BOURGOIN.

Various systems of repetition are shown in Plate 40. None of these diagrams must be considered in any sense a completed design. They are skeletons or frame works merely, on which designs may be repeated and built up. From A to F are possible arrangements of dots, each dot representing as simple or elaborate a unit as you wish. The arrows show the tendency of the dots in each system to run in rows, guided by the comparative nearness of the units. Other rows, of course, may be discovered but they are not as evident as these. The two commonest systems of repetition are A and B.

The lower half of the plate is reproduced from a French work, "Theorie de l'Ornement," by J. Bourgoïn, published in 1873. You will notice what interesting combinations are possible with simple systems of lines and how numerous are the results with slight variations of position. Other forms of lines permit of equally interesting experiments.

It must be repeated again that these figures represent principles of repetition and combination only and must serve as guides for the use of such original decorative units as may be desired. The richness of results from the application of these systems cannot be appreciated without serious experiment and discovery of the presence of these systems in much of the good decoration of all the historic periods.



FROM A ROMAN MOSAIC.

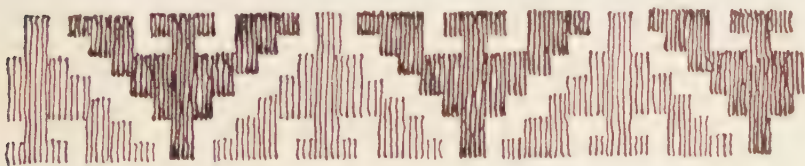
With a stub pen or a stick sharpened to a flat chisel or screw-driver shaped end, or a pencil with a broad, flat shaped lead, try a large number of borders in thick and thin strokes as shown in the upper part of this plate. Do not attempt to be too accurate, nor yet allow yourself enough freedom to be slovenly and careless. A slight inaccuracy, however, is more pleasing than mechanical precision. Do not sketch these out faintly at first but produce them direct without further finishing.

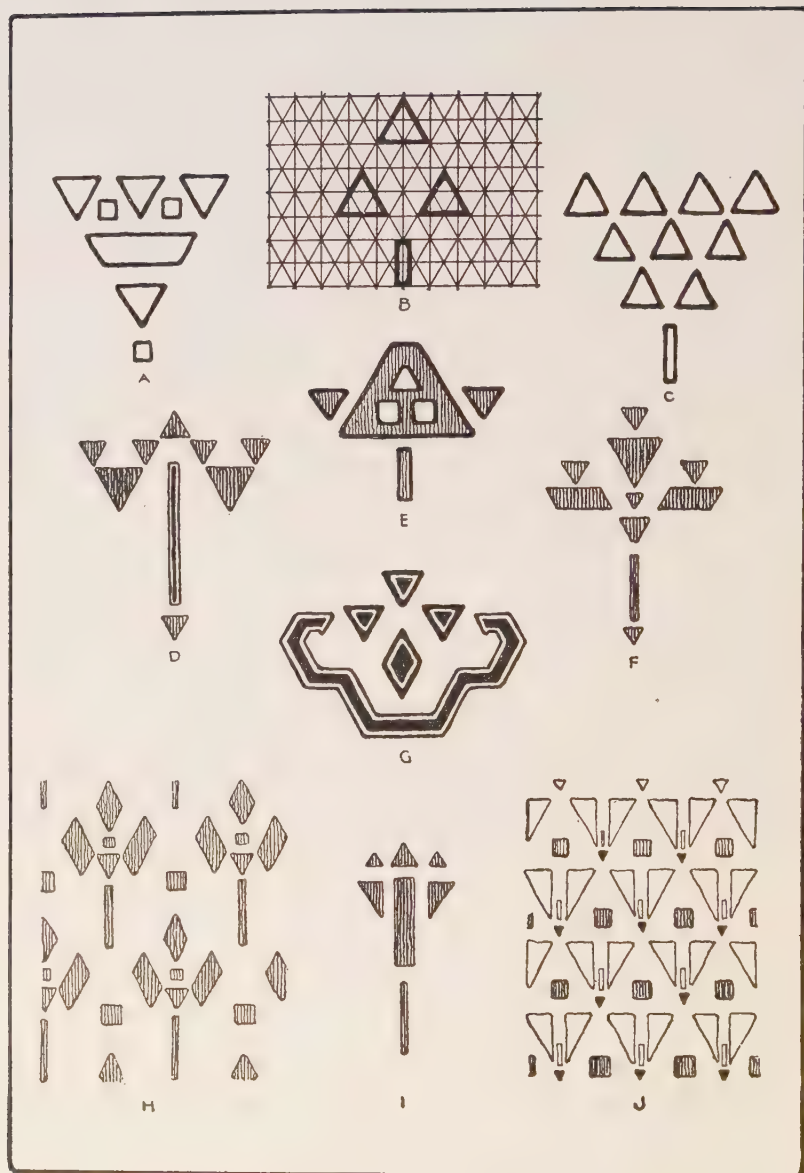
Some further uses of squared paper are suggested on this plate. In the forming of borders and units, the imagination is stimulated by the squares and with added practice one sees forms innumerable in the network.

Lines cannot be drawn indiscriminately across the squared paper, otherwise there would be no need of its use. Forty-five degrees is a safe angle to limit one's self to, as it splits the right angle in half and retains the same obliqueness in any direction.

Squared paper of various kinds is procurable from art stores and school supply houses. If of cheap variety it may be drawn on directly in the experimenting; if expensive, tissue or rice paper should be placed over it and the designs drawn thereon, the squares being easily seen through it. A variation of the principle of the squared net is shown on the next Plate, 44.

The network here is composed of horizontal, vertical and 60-degree lines. Students can find many examples of historic ornament, whose basis or origin was just such network as this. Much of the fascinating tracery of the Arabs has this underlying plan. It is well to remember that simple units frequently lead to more beautiful results than complicated ones, especially in the hands of the inexperienced. In the designing of many units observe nature's principle of upward spring or growth, with the chief interest of the unit toward the top. Design a border 8x12 inches, using two alternating figures derived from the nets described above. The corners will be especially difficult. Several trial borders should be drawn and the best completed in two or three tones as shown on Plate 45.

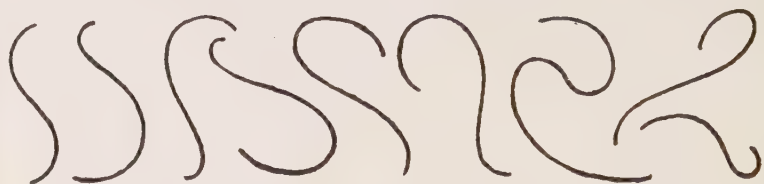




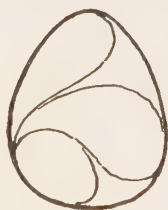
UNITS DERIVED FROM A NETWORK OF
EQUILATERAL TRIANGLES.



RECTANGULAR BORDERS COMPOSED OF
ABSTRACT STRAIGHT LINE UNITS.



C & S CURVES . . CIRCULAR ARCS &
CURVES HAVING SIMILAR HALVES
ARE THE LEAST INTERESTING



LINE RHYTHMS WITHIN
LIMITING BOUNDARIES

SIMPLE AND COMPOUND CURVES OF OTHER THAN CIR-
CULAR FORM ARE THE MOST USEFUL IN DESIGN.

Most students easily appreciate the kind of curves that are usable if they are classified as C curves and S curves. C curves are those that curve in one direction only, while the S curve has a compound direction.

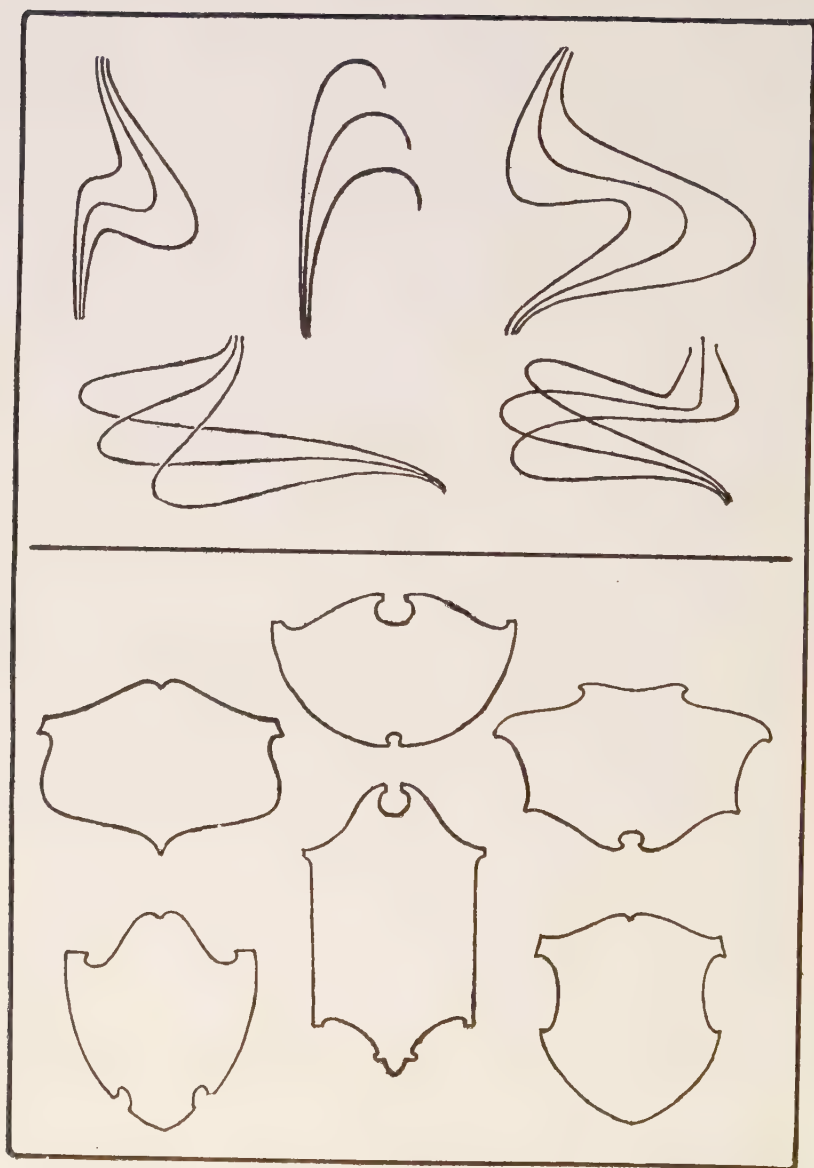
By eliminating all curves but these, the work at once becomes, at least, hopeful. In either of these curves the fact must be appreciated that equal and uniform curvature is usually less pleasing than the emphasis or accenting of one part or another, as illustrated in the two upper rows.

The C and S curves may also be termed simple and compound curves. Anything which exceeds the latter, for the purpose of these exercises, will be termed a complex curve and banished forthwith.

A vital principle, frequently neglected, is the massing of any form, rhythmic or not, within a pleasing limiting shape. The eye cannot grasp a sprawling figure. Geometric figures with straight line boundaries are good as inclosing shapes, whether a rectangle, triangle, trapezoid or even a more complicated form. Other enclosures formed by straight and curved lines may be used. Figures formed only by curves comprise, of course, the circle and ellipses of any proportion. Another basic curved shape, itself beautiful and capable of many variations, is the egg or ovoid. It may be long or short, narrow or wide, formed on a straight or curved axis. Its top or base may be indented or extended to a point and its contours modified by subordinate forms within reasonable limits.

An exterior enclosing shape decided upon, its interior should be broken by a line rhythm. The growth should be distinctly from one source and tangential in its joinings, with the clear purpose of obtaining, with each curve, an enclosed area which is itself of pleasing form. The danger of running into curves other than the C and the S is great, and in many cases the pupil seems helpless. The arrangement may be symmetrical on the axis line or have no such restriction. After any shape has been filled with a line rhythm, the completion of the design may be accomplished by modifying the various areas enclosed by the lines into leaves and flowers. The rhythmic lines may be taken as leading veins of the leaves or as boundaries between leaves and flowers. Frequently the rhythmic lines are adequate in themselves without further treatment.

The enclosing boundary line of the limiting shape may be permanently retained as a part of the scheme, or erased, as seems best. Finally, the treatment of the whole in color, if feasible, enhances the effect.



RHYTHMS OF VARIED CURVES. SHIELDS AND ESCUTCHEONS ILLUSTRATING GOOD COMBINATIONS OF CURVES.

The rhythmic flow of several related curves from one general source is constantly found in nature and art. We find such rhythm in running water, swirls of clouds and dust, or the mingling of different colored liquids. A drop of waterproof India ink on the surface of a glass of water will, at the touch of a pencil, produce beautiful rhythmic forms, seen the clearer if the glass stands on a white surface. The markings of leaves, flowers, shells, insects and the grain of woods offer countless examples.

A series of exercises similar to those in Plate 48 will be helpful in appreciating and producing good line rhythm. Such rhythms may repeat to form pattern.

The lower half of the plate gives a series of applications of these curves to simple frame forms of the nature of shields or escutcheons. Try making some. Avoid joining a C and an S curve together without an angle or straight line to break their union, or you will produce a complex, tiresome and aimless curve.

Plate 50 is intended to show the results of the free play of the brush in design. Much of the beauty of famous Greek vases is due to the free brush decoration upon them. The so-called honeysuckle and other forms are the results of brush play.

The brush must be regarded and used as a flexible instrument with which narrow and wide strokes may be made with equal ease. A medium sized brush should be filled with water color and many strokes tried until some of its possibilities are known. Then the forms along the left side of the adjoining plate should be mastered. Following this, the other designs in the plate should be practiced. Original variations of these may follow. Pencil must not be used. Direct brush strokes alone are wanted, and tracing also is forbidden.

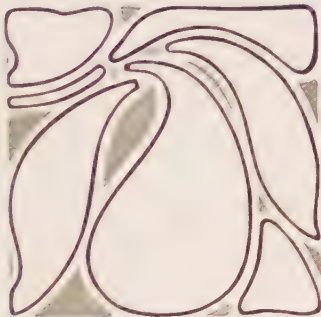
In the historic art of the different peoples, the brush has been repeatedly used. An examination of any of these decorations shows the freedom of the brush play and the lack of tracing or other mechanical aids. Study should be given to Plates 62, 67, and the lower half of Plate 64, where examples of direct free brush decorations are given.

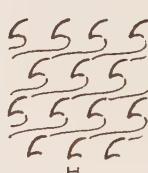
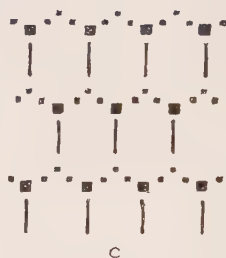
The designs on Plate 51 are a development of the problems on the lower half of Plate 46 and of O to S of Plate 52. Purely abstract lines are planned across the square or rectangle, trying for beautiful curves and spaces of natural forms.





DECORATIVE UNITS PRODUCED BY
FREE BRUSH WORK.





· SURFACE · PATTERN ·
· ABSTRACT · MOTIVES ·

SIMPLE METHODS OF DRAWING SURFACE PATTERN, A—H.

DEVELOPMENT OF SIMPLE RHYTHMS, I—S.

ELABORATIONS OF RHYTHMS INTO SUGGESTED FLORAL UNITS, T—g.

As a review of some of the plates and problems that have been presented this plate will be helpful.

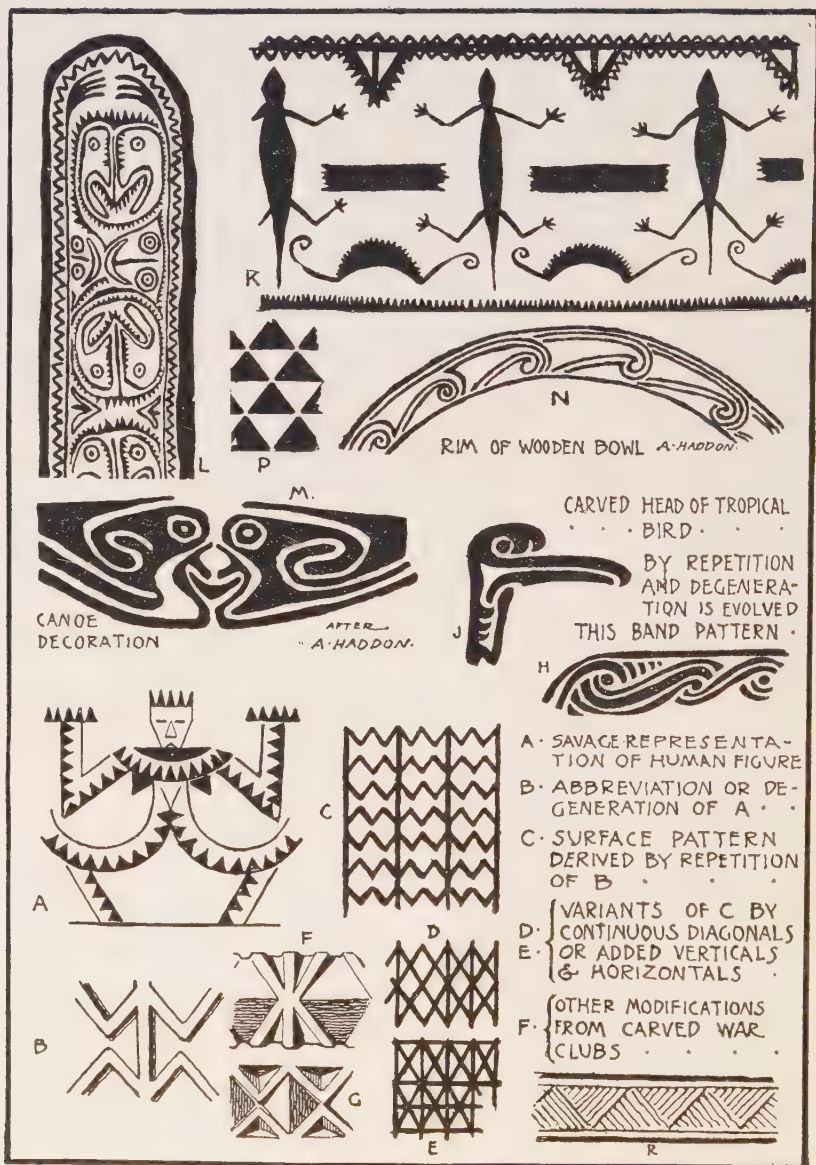
Simple arrangements of spots in different systems of repetition are suggested in A and B. C and D show some of the interesting results of combining dots and lines, and lines of different lengths as surface decoration. E gives us a series of angles in orderly arrangement. F and G show two of a wide variety of possible connections of these angles which at once give a sense of growth or graceful motion to the design. In H we have the small angles changed through the use of short curves rather than the straight lines for their sides and a still different method of connecting them with one another.

I to N are problems similar to Plate 48, involving the rhythmic combination of three or more lines. To do this successfully is a test of one's sense of beauty of line and an excellent way to develop such a sense. Figures O to S review the line rhythms within limiting boundaries on the lower half of Plate 46. From these five figures are derived the row of decorative flower units below, T to X. Each division of the upper shapes has been in some way modified and forms either a space or a part of the flower or leaf form of the row below. The bottom row, Y to Z, are straight line variations of the preceding figures, an interesting and valuable exercise for the design student.

All of the exercises on this sheet, it must be remembered, are too small. Actual practice should be done on a large scale without niggling and fussing. Any one of these figures ought to be made not less than four inches in its shorter dimension.



HINDOO DESIGNS. OWEN JONES GRAMMAR OF ORNAMENT.



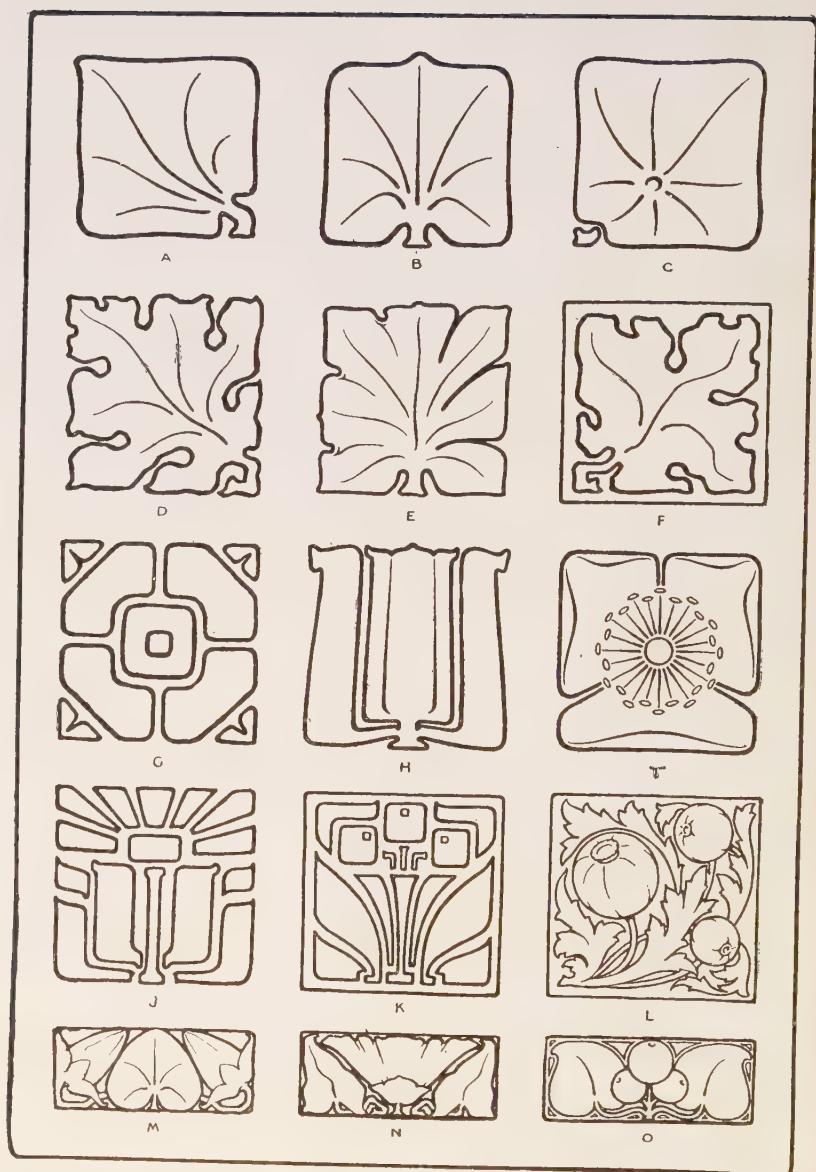
ANALYSES OF SAVAGE ORNAMENT FROM THE EVOLUTION IN ART, A. C. HADDON, WALTER SCOTT & CO., LONDON.

The field of savage ornament is full of suggestions to the student of design. One may be helped through studying the origin of the ideas of barbaric people and their methods of using them or we may from the forms used by them ourselves get suggestions of new forms for our own use.

Realism is believed by many scientists to be the origin of most savage ornament. An original picture or carving, hopelessly crude, was to the savage filled with truth and life. Such picture or carving copied and repeated by many hands, and in different materials, degenerated until the original form was hardly discoverable; yet the idea persisted as tradition.

In addition to Realism another factor must be reckoned with. We may call this conservatism, or the unwillingness to change the shape, method or style that had become the habit. Thus we have forms or markings that were due to certain methods of making an object imitated with entirely different materials and methods of manufacture and for different purposes.

In "The Evolution in Art" by Alfred C. Haddon, from which some of the drawings on the accompanying plate are borrowed, four lines of development of savage art are given. These are Art, Information, Wealth and Religion. In Art we have the human desire to picture and to beautify. In Information we see a phase of art growing through the interchange of pictorial signs of every sort for purposes of communication. Heraldry and tribal symbols and the alphabet fall into this class. The desire for Wealth and its attendant display led to the decoration and over elaboration of objects purely as a sign of personal riches and importance rather than for any practical or artistic reason. Many modern forms may be traced back to this source. The last influence in the development of savage art is Religion. Man has ever desired to bring into visual form his ideas of the unseen powers about him. These forms degenerate, through successive repetition and simplifying, into magical symbols or signs. In Plate 54, A represents a god. B is a poor imitation of A. C is a repetition of B, forming a symbolic decoration. D and E show still further mix-up and decay of the original form. F and G are from the same form A. H and N while apparently purely decorative are derived from and stand for the tropical frigate bird, J. In K we have a border of alligators and savage garments. P represents triangular pieces of cloth, the costume of the savage tribe. The combined use of the same eyes or other features by more than one face causes curious results: L, M.



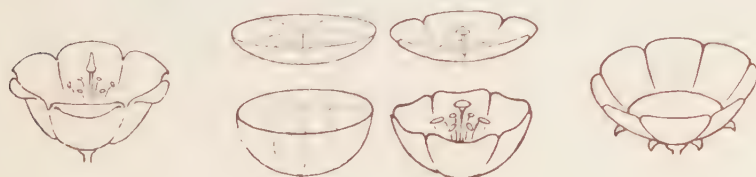
ADAPTATIONS OF VARIOUS LEAVES AND FLOWERS TO THE LIMITS OF A SQUARE, A-L; OBLONG TREATMENT, M-O.

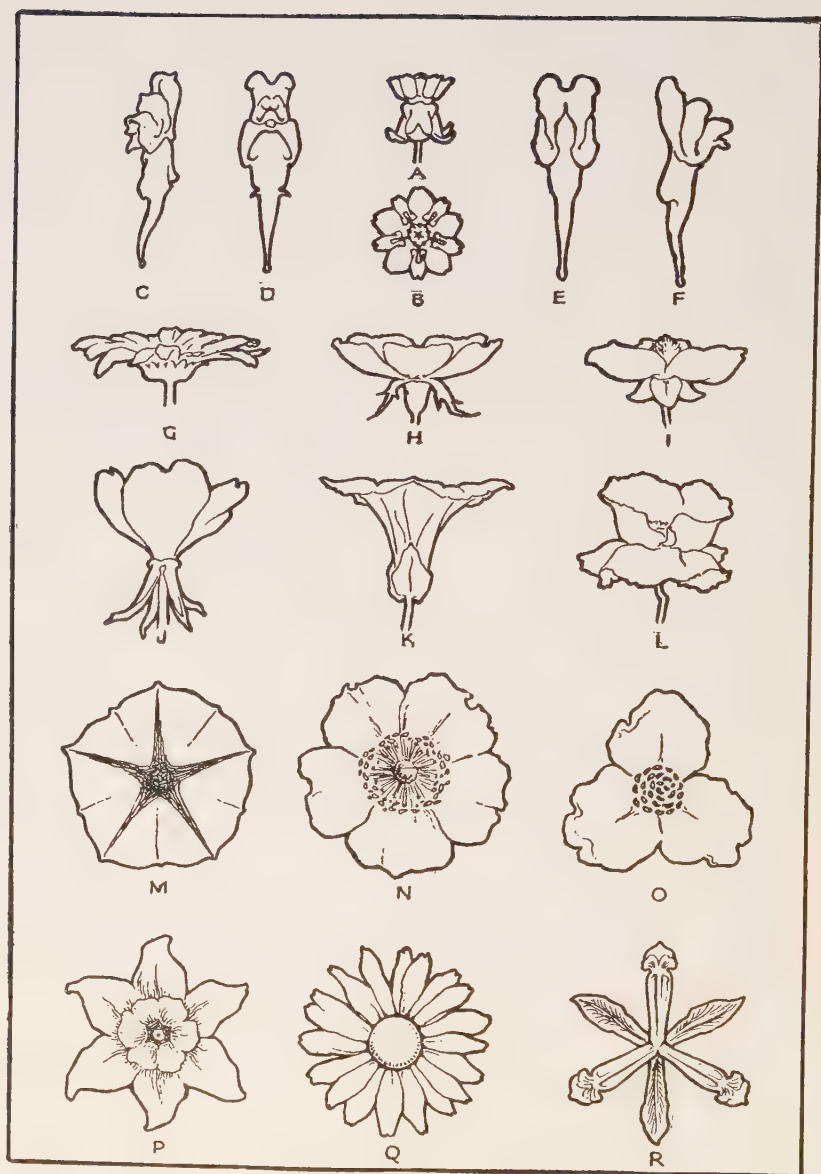
These problems deal with natural forms for purposes of design. These must be considered elastic, as though they could be either stretched or shrunken to accommodate themselves to necessary limits. In A to F leaves are given which fit the square. In all of these the veins play a most important part. In planning a leaf within any form it is well to sketch the veins first.

D and F show leaves with irregular edges. While the two sides of either leaf are not symmetrical, the indentations will be found to balance each other satisfactorily, yet with variety. E shows two methods of treating a simple indented leaf. This leaf should be symmetrical, of course, and not retain the unmatched sides as shown here. G to I are flowers fitted to square limits, both in side and face views. The fact that a flower has an odd number of petals should be no bar to its use in a square, as shown in I.

Side views of groups of flowers and leaves are given in J to O, and show both the stiff and free treatment in conventionalization. In all of these problems it is essential that the forms fill the frame chosen so that it may be removed and the geometric form taken by the leaf, flower or group shall be as unmistakably the one intended as though the frame were about it.

Draw several cones each having an elliptical base about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long. Each base should show a different degree of curvature. Each cone should differ from the other cones in length and amount of slant of their sides. Draw on another part of the sheet four other ellipses of about the same size, and add to them sufficient lines to form them into bowls or saucers of greater or less depth. Divide the edges of the ellipses in each case into from five to eight equal parts. Change the drawings of these cones, bowls, or saucers into decorative flower forms, using as few lines as possible and keeping strictly to outline only. Each flower will appear tipped forward more or less according to the degree of fulness of the ellipse.





FLOWER FORMS OF SEVERAL COMMON DISTINCT TYPES, IN DIFFERENT POSITIONS.

For design one must have proper material. Nothing can equal for this purpose careful details of plants seen from different positions.

Most simple flowers in face view are based on the circle with regularly spaced petals (M to R, Plate 58). In edge view they are cup, saucer or plate-shaped (G to L, Plate 58). Note carefully the corolla, calyx, pistils and stamens.

Experiment with as many flowers as possible in both face view and edge view as though elastic and capable of fitting snugly into several different areas, Plate 56.

A wide field for experiment and discovery is presented by the buds, fruit, seedpods and sections of nature forms, a few of which are shown in Plate 60. Some of them are as follows:

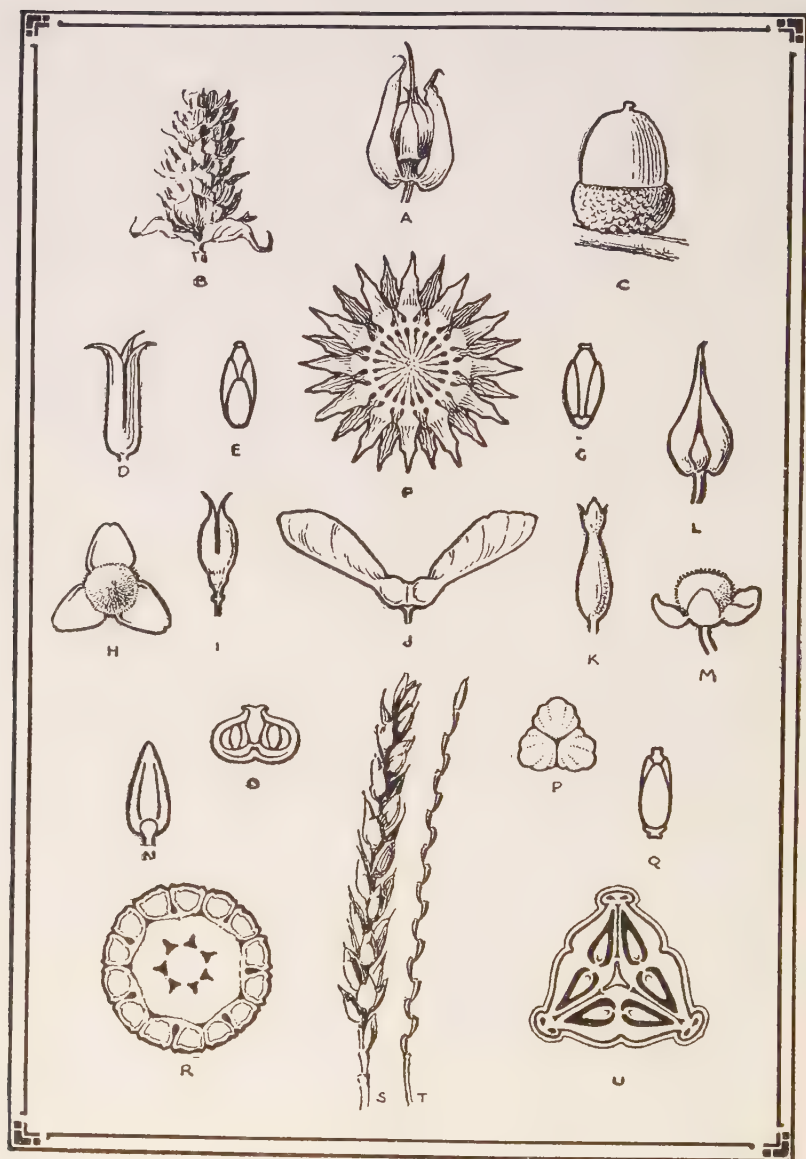
A, L, N, Morning Glory; C, Acorn; D, Evening Primrose; E, G, Q, Arbor Vitae; H, M, Sagitarius; J, Maple; S, Wheat Head; T, Wheat Head stripped; R, Section of Corn Cob; U, Section of Cucumber.

Some of these forms have been conventionalized. None should be used for purposes of design until so treated.

Repetition of these conventionalized units according to the methods explained in Plates 38 and 40 will produce interesting patterns.

The drawings in Plate 61 illustrate certain examples of rhythm in nature. Rhythm has elsewhere been defined as orderly accented progression. It will be clearly seen here how the mature, advanced forms on each of these sprays gradually but regularly evolve from less mature flowers or leaves which come from half open buds and buds beginning to form. Not only is there a regular progression as to advance of growth; sizes show as clear and pleasing a rhythm from the large to the small. The spacing between the parts also is orderly in its arrangements. Finally color enters the field and renders with its obedience to the law of gradation a new beauty. The searching eye will ever find wonderful rhythms of tones from dark to light, from one color to another in every field of nature, during every season. But a slight suggestion of this is given in the shading of the Red Hot Poker plant in this plate, suggesting the gradation from a light tone at the bottom to a fiery red at the top.



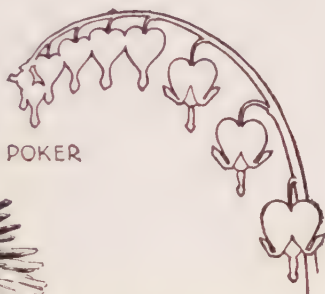


FRUIT, BUDS, SEEDS, SEED-PODS, AND SECTIONS
AS MATERIAL FOR DESIGNS.



FOX GLOVE

RED HOT POKER



BLEEDING
HEART

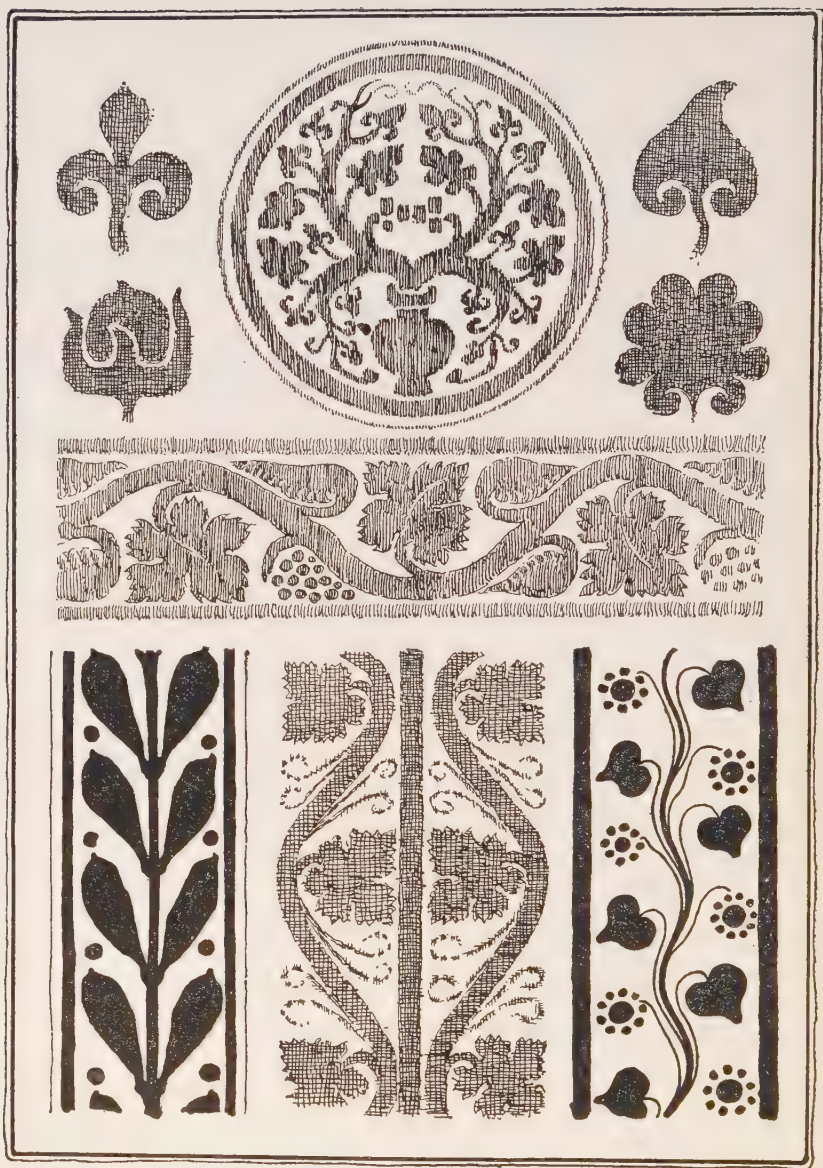


IVY



GLADIOLUS

HB



SIMPLE DECORATIVE FIGURES AND BORDERS
OF GREEK AND COPTIC ORIGIN. ADAPTED FROM
NATURE IN ORNAMENT, L. F. DAY; BATSFORD, LONDON.

During the first centuries of the Christian era, we find in Egypt an interesting art flourishing among the Copts, or Egyptian Christians. Many beautiful textiles have come down to us from those times that are full of design suggestions. The designs in lighter tones on this plate give us examples of some of this Coptic ornament. There is a certain simple, free, primitive character about it that is most appealing. Frequently there is an ignoring of the laws of true growth as in both the borders here, where in the upper we find the curled-up leaves growing in opposite directions on the same stem, and in the lower, tendrils performing a similar trick. These errors, which are frequently pardonable in famous works of the past, because of their many other wonderful qualities, do not, however, excuse us for childish mistakes.

In the four detached forms at the top we have interesting units suggestive of nature, yet not so close as to be distinguishable by name.

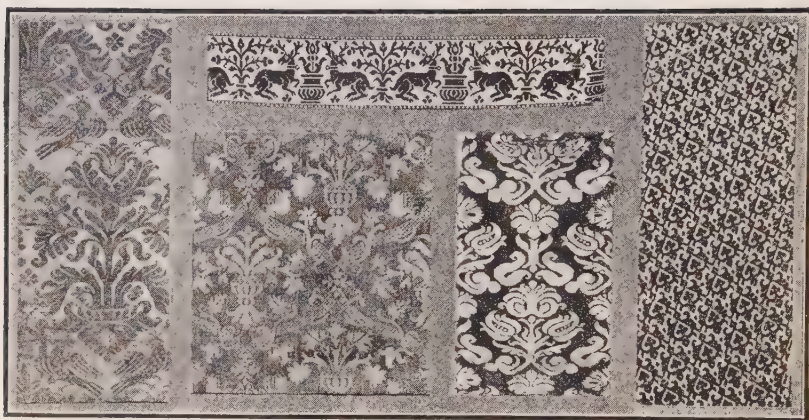
The black borders are Greek, and in the vases from which they were borrowed are direct brush work.

Make original borders in the spirit of these designs. Then try this application.

Draw a circle 8 inches in diameter and consider this to be the outside edge of a plate. Design an appropriate border for this plate, using a leaf and a flower motive in the spirit of the accompanying illustrations or some units which you have previously designed in other exercises. This leaf or flower may probably have to be redrawn on a smaller scale to fit the width of the border. The number of repetitions should be five or more. The forms should be simple and painted directly without tracing. Other details of arrangement are left to your best judgment. The center of the plate should be left entirely blank.



EARLY CHRISTIAN TOMB, RAVENNA.



TEXTILES OF THE XVI CENTURY.
JOHN HERRON ART INSTITUTE.

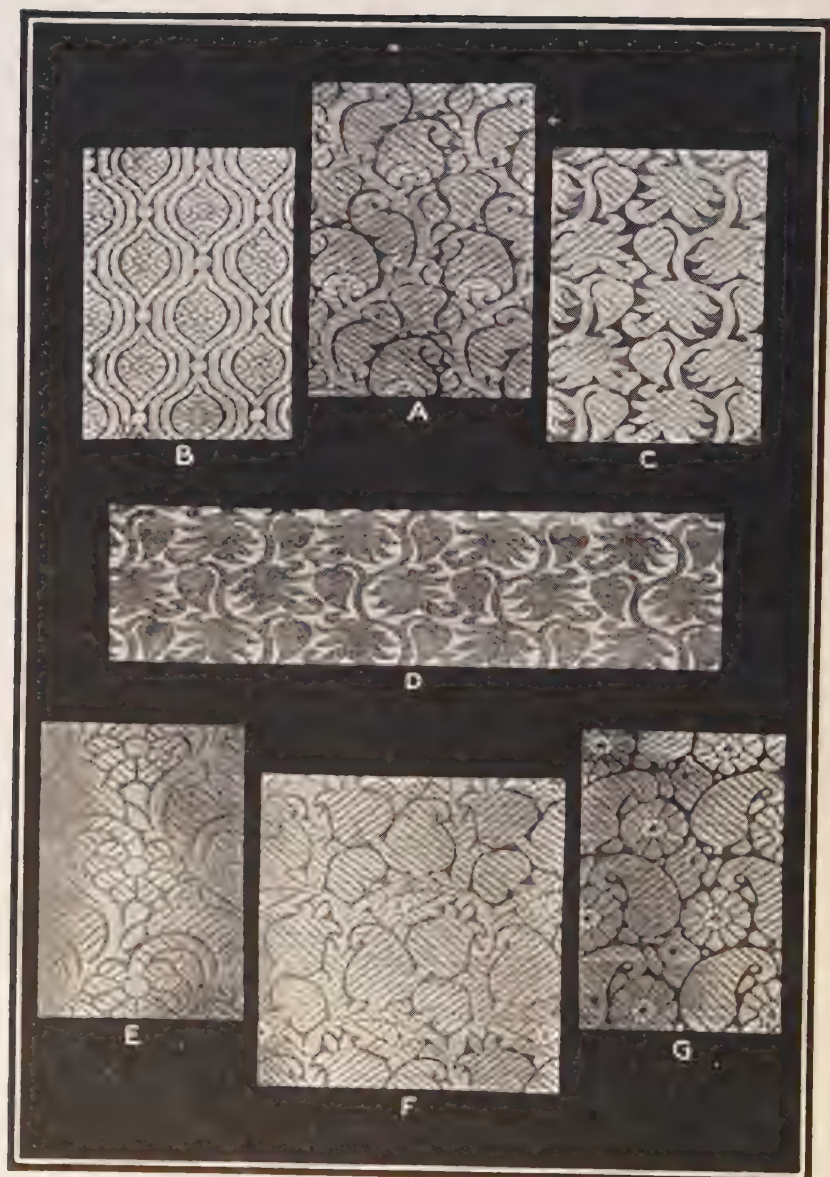


OLD PERSIAN POTTERY SHOWING CHARACTERISTIC
FREE BRUSH WORK.
JOHN HERRON ART INSTITUTE.

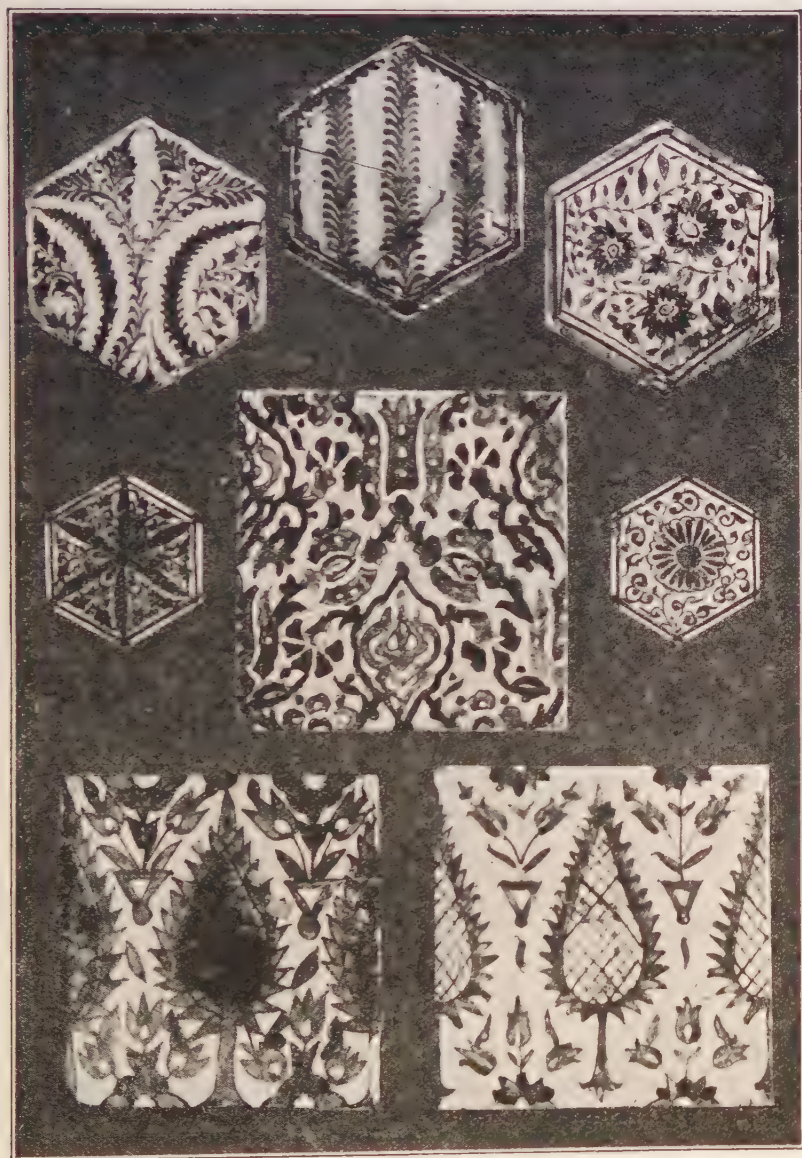
In the history of mankind textiles have played a part of great importance. Every age has had its characteristic materials, weaves, patterns and colors. The preceding plate showed us types of Coptic and Greek borders. We know little of Greek textiles, but believe that such designs were as common on cloth as on pottery. In the upper part of Plate 64 are a group of textiles of the XVI century from Italy and France. While small in this illustration, you can see enough of each to get a good idea of the pattern and the "repeat." These textile patterns are composed of leaves and flowers of a very conventional type, but are in all these examples perfectly flat in treatment, without attempts at perspective or light and shade. Animals and birds also are very conventional, flat, and almost child-like in the way they are drawn. This was the case in the best periods of design. Within the more recent times design deteriorated through too close an imitation of nature's details, rather than following nature's principles and bigger forms. The geometric framework on which these textiles repeat is also quite clear.

On the next page, Plate 66, are other excellent examples of repeating woven pattern. These are from India, a kind known as "Kin Khab" weaving. It would be well to analyze each of these patterns carefully to see the way it is made, and to try oneself to originate something along this order. Choose, for example, in A, a leaf form, and note where this recurs. This gives you the plan of the repeat. Then see the leading line of growth which connects these leaves and note what other forms branch from it and how they are fitted snugly into the spaces. The beauty of these designs is due to a great extent to the skill shown in the close fitting of the patterns.

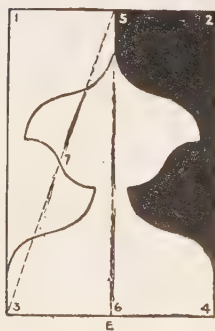
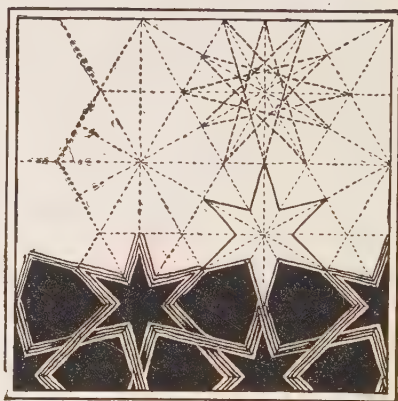
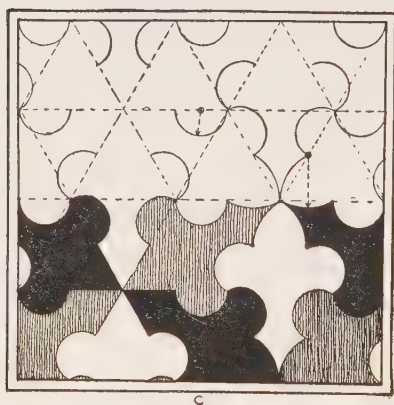
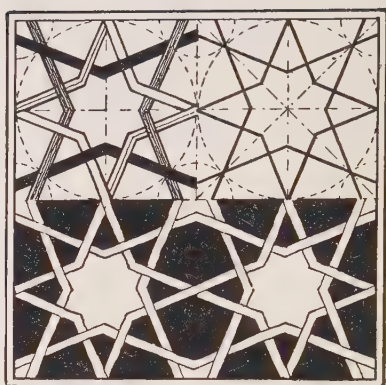
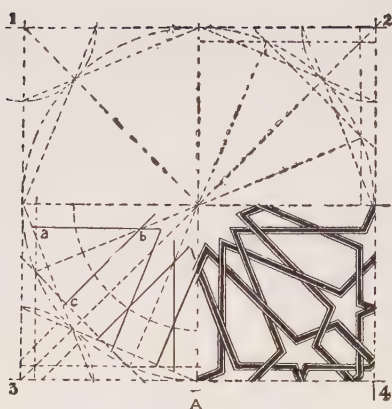
Several references have been made to free brush work in previous exercises. In lower half of Plate 64 and in Plate 67 are excellent examples of the free brush work of the Oriental artists. The apparent ease with which these decorations were done and the lack of precision and accuracy in them should not be taken by the novice as an excuse for carelessness. The thing which should be clearly understood and made a more frequent rule of action is that the brush was guided by thought and skill, probably as the result of many years of severe training. Tracing and other mechanical aids are discarded and the keen eye and sure hand alone produce the result. The slight irregularities and differences add interest rather than otherwise. In every age the free hand of the artist has produced the happiest results. Our own work will profit by a following of this rule.



GOLD THREAD OR "KIN KHAB" WEAVING. SHOWING
SIMPLE BUT BEAUTIFUL DESIGNED SURFACES.
THE JOHN HERRON ART INSTITUTE.



PHOTOGRAPHS OF TILES FROM DAMASCUS ILLUSTRATING
THE FREE BRUSH PLAY OF THE PAINTER.
COLLECTION OF MR. LOCKWOOD DE FOREST.



GEOMETRICAL ANALYSES OF
MOHAMMEDAN DECORATIONS.

The Mohammedan religion forbids the representation of living forms. This led to the production of ingenious and beautiful geometric designs. The accompanying plate explains some of these.

Figure A. Basis of repeat, a square. 1. Inscribe a circle, to which draw four tangent circles with corners of square as centers. Draw diagonals of square, thus giving points for the construction of octagons in large and small circles. 2. Inscribe a second octagon in large circle, its angles midway between angles of the first octagon. Extend sides of octagon to sides of square. Connect center of circle and angles of second octagon. 3. Place point *b* any distance from center of circle on all radii. Draw *ab* and *bc* parallel to alternate radii. Draw similar parallels to all other radii. Repeat process in corner circles. 4. Interlace and elaborate final lines, erasing all others.

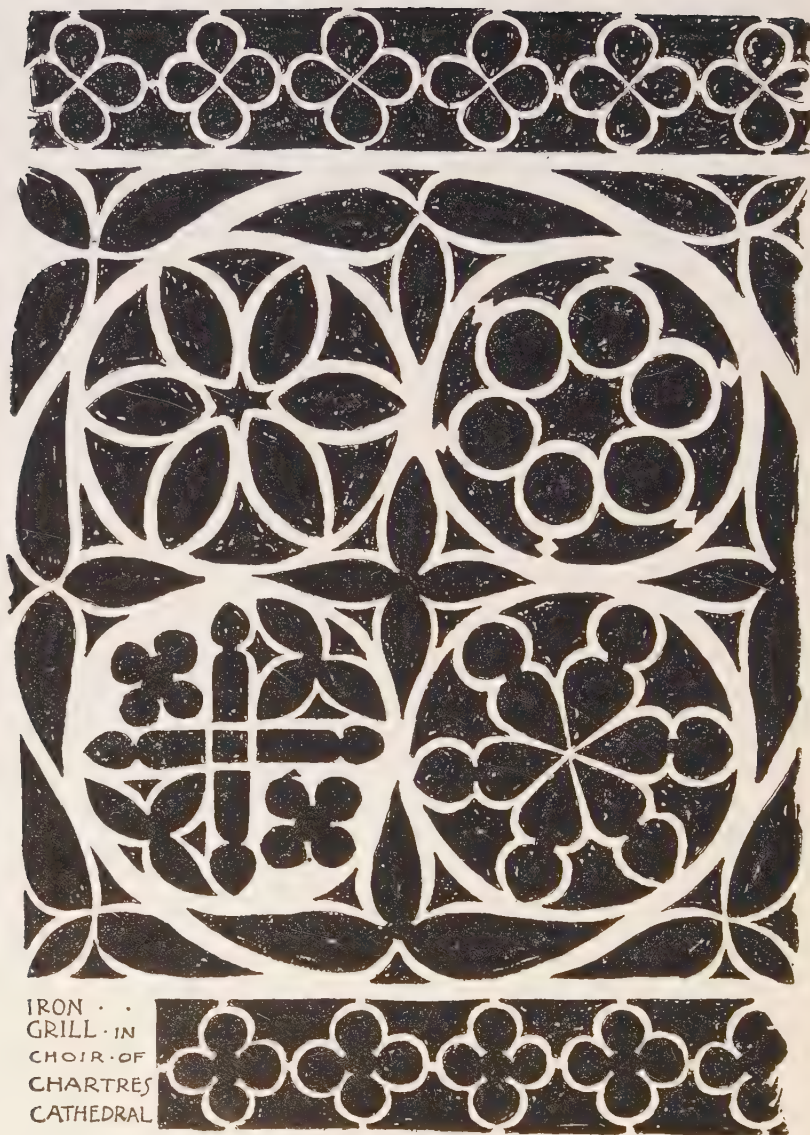
Figure B. Basis of repeat, a square. 1. Inscribe in square (upper right-hand corner) large circle. Draw quarter circles in corners. 2. Draw diagonals and diameters. 3. Connect ends of diameters and meeting points of large and small circles with straight lines. 4. Elaborate these lines into bands and interlace, erasing all construction lines.

Figure C. Basis of repeat, a hexagon. The method of construction is shown in the diagram. The sharp points of the figures are shown both with curved and straight lines. A choice may be made and preserved through the design.

Figure D. Basis of repeat, a hexagon. The divisions of the hexagon produce a six-pointed star the edges of which, elaborated into bands, interlace continuously.

In E, F and G are shown some interesting phases of Saracenic design, in which the dark and light portions of the pattern are similar in shape. In E the rectangle, 1, 2, 3, 4 is bisected by 5, 6. The line 3, 5 is drawn and divided into two equal parts by point 7. Any shape, not too elaborate, drawn from near the point 5 to stop at point 7 will form half of the upper portion of the design. This shape must be traced inverted and reversed below 7 to end near 3. The whole shape is now traced in a reverse position at the right. The design is colored in contrasting tones. Figure G shows a more elaborate example.

F, 1, is an explanation of the other patterns in this group. Whatever is cut out from one block must be added to the next. The small curves shown in 1 are developed in 3 to leaves, and still other forms appear in 2 and 4.

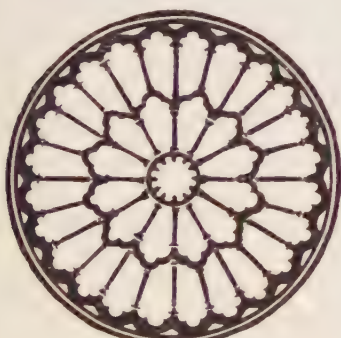


THE LARGE CIRCLE CONTAINS FOUR SMALLER CIRCLES
WITH DIFFERENT INTERIOR TREATMENTS.

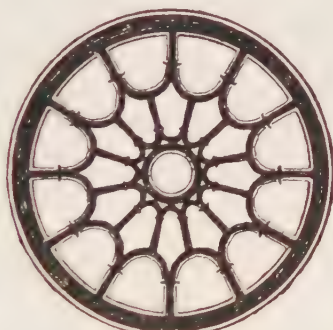
Gothic art, as did the Saracenic, derived much of its ornament from geometry. Plate 70 is an example of this. It represents a small screen of pierced iron covering an opening in a part of the choir of Cathedral of Chartres, France. Though not a foot across in the original, it has a delightful variety of geometric circular patterns, which still give a satisfying sense of harmony in their variety. This is largely due probably to the constant recurring of the circular curves throughout the different parts of the design.

Fascinating experiment may be made with the compass, especially if aided by illustrations showing the geometric framework of Gothic traceries. Some other examples of this are given below.

Other examples of Gothic decoration are given in Plates 99, 124, 130 and 131.



NOTRE DAME, PARIS



MANTES CATHEDRAL



ST. NICAISE, RHEIMS



NOTRE DAME, PARIS

SOME CATHEDRAL ROSE WINDOWS.



DRAWINGS OF THE SOW THISTLE IN OUTLINE AND IN
A SILHOUETTE OF TWO VALUES.

NATURE ANALYSIS AND APPLICATION TO DESIGN

This problem is the arrangement of an attractive spray, including stem, leaves, buds, seed-pods or flowers. This should be at least eight inches long, though much longer than that is preferred. Consider it framed by an oblong of any proportions you wish. You must decide, however, the best position to have the oblong so that the spray with its parts makes the best composition including all the background spaces possible. Draw the spray with a small brush and India ink without any previous pencil guide lines or sketching. This will require very careful thinking and plotting and imagination before you start. Your first two or three trials may not be successful; do not stop, however, on that account. The effect of the finished drawing will be a silhouette or shadow form of the spray without any interior details showing.

Much additional interest can be given this work by putting into the same drawing a second flower branch of the same or a different kind, so placed as to compose well with the first, but rendered in this second instance in a lighter value. This second silhouette gives decided interest to the whole picture, suggesting a more distant form dimmed by space.

The use of the square or oblong finder is advisable after these drawings have been made; and well-composed portions, discovered by the finder, should be traced on rice paper. Several compositions can frequently be made from one flower drawing. Continue this study by a pen and ink drawing in accented outline, base on a pencil study of the same or a different spray. Accurate drawing and truthful records of facts of construction are most important.

Plates 74 and 75 show careful studies of flowers with their stems and leaves in natural attitudes. Each flower and stalk should show clearly. Do not draw a bunch or bouquet. If available, draw some flower spray showing clearly the calyx, corolla, stem, leaves, and, if possible, buds and forming seed-pod or fruit. Sometimes all these are on one stalk at the same time.

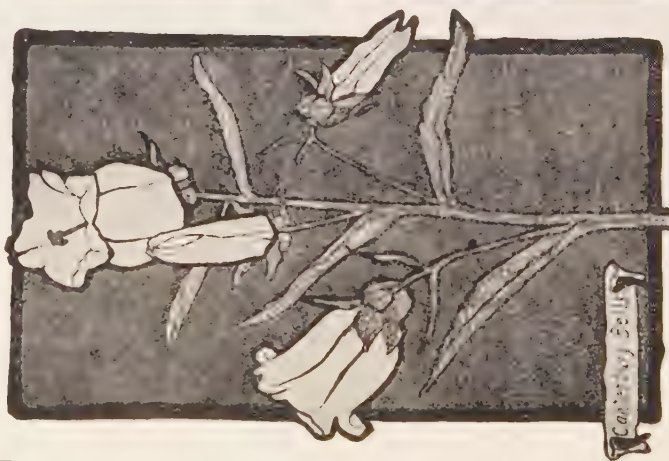
A medium or hard pencil, kept sharp, should be used for accurate drawing. Drawings may be finished in pen and ink, water color or crayon.



PEN AND INK DRAWING IN ACCENTED OUTLINE
OF THE EVENING PRIMROSE.



STUDY OF MISTLETOE IN PEN
AND INK OUTLINE.



BOLD TREATMENTS OF FLOWER AND FRUIT
SUBJECTS WITH PANEL ENCLOSURES.

In the drawing of natural forms, either from the actual objects or from copies, the tendency frequently is to draw small. A good cure for such a habit will be found in the making of extra large drawings of similar kinds of objects.

Drawings of this kind should not be less than 12x18 inches, while many should be much larger. Charcoal should be used in plotting the general masses and refining the smaller shapes. For a final finish a black crayon may be employed, or a brush-and-ink outline, to resist rubbing. These large drawings serve a double purpose. They are an excellent drill in large planning and in manual execution with bold outline; when finished they serve admirably as design material in other classes, their large dimensions and bold execution being easily seen across the room.

The proper interpretation of natural forms on such a bold scale will be found a none too simple task, even if copied from the flat. The plates shown herewith are free interpretations enlarged from some English outlines by Vere Foster.

As an added element of interest, after these drawings are finished in outline, flat tones of harmonious color may be added, and simple panel or marginal lines used as enclosing forms. Parts may be tinted in crayon as a pleasing contrast to other surfaces in wash in the same drawing. Papers of different textures will prove interesting for experiment, in the way crayon, wash, charcoal or other mediums may show to advantage.

SQUARING UP

In connection with these large drawings, above suggested, the subject of squaring up may be satisfactorily presented. Its great antiquity as a valuable method or aid in drawing should be realized, and the fact that it has probably been employed by almost every civilized people. Small drawings, tracings, or actual printed pictures, if marking will not injure them, may be covered by a network of rectangles. The large sheet for the copy is to have an exactly proportionate system of oblongs. Both network systems should have at their edges identifying rows of numbers and letters as guides. The plotting of a drawing on the large paper, following square by square the smaller picture, is usually full of interest to everyone, and it yet leaves at the end a considerable field for individual expression in the method of finishing up the bare form which the squaring process has helped to produce. Refer to cut on page 12.



EXAMPLES OF JAPANESE PLANT
DRAWING WITH BRUSH.

Classes in design should take some well-known flower and study its decorative possibilities. Free renderings of such flower, bud, leaves, seed-pods, and so forth, should be made from the actual plant when possible.

Plate 78 shows the extraordinary skill of the Japanese in the decorative drawing of natural forms. Unlike Europeans and Americans, the Japanese has been trained from infancy to use the brush. Many ages of such habit develops a peculiar natural aptitude that leads to special proficiency with added study. These Japanese panels are fine examples of line and mass composition.

Studies of plant sprays of all kinds should be repeatedly made in the spirit of these panels, with direct brush work.

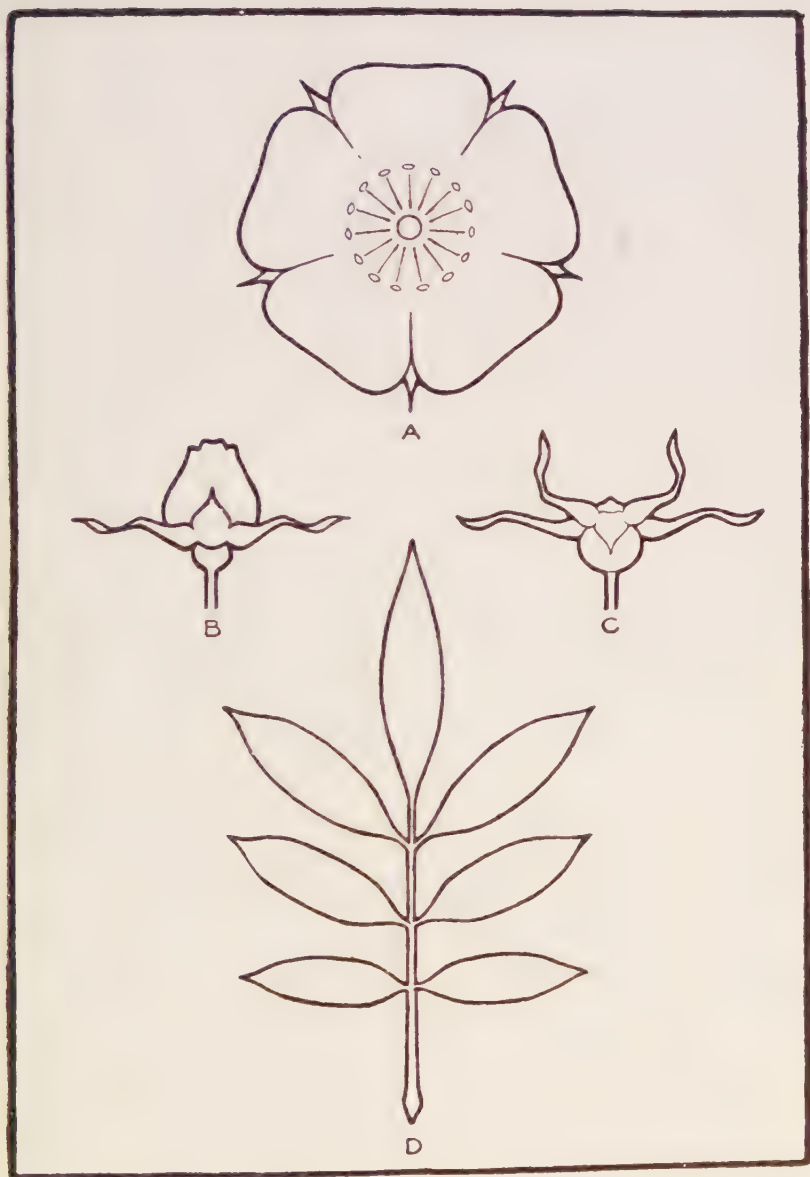
The teacher should make before the classes a series of large studies in strong black lines on paper, either white or of some pleasing tone. Blackboard drawing cannot take the place of virile work resembling the technique required of the pupils. Sometimes in skillful hands these large drawing are very effective if made in black on toned paper, carefully touched at a few important places with a little white or color. Too much of this, however, is worse than none.

Studies of the natural plant should be followed by analysis of the plant for its decorative possibilities. Plants at first unpromising will be found full of decorative suggestions if the searcher is in earnest. The details given on Plates 80 and 81 are but few of the quantity presented by the wild rose. Here, again, the storehouse of history should be drawn on for illustrations of the fine use of similar plants in the best periods of ornament. To mention the rose in its countless applications in English medieval art is merely to swing the door ajar to a treasury full of interesting material. The adaptation of such decorative material to the particular problems of each student is left to the individual. The approach only is here suggested.





STUDIES IN PEN AND INK OF THE WILD ROSE.
A, SEEDPOD OR "HIP." B, BUD. C, OPEN FLOWER.



FORMAL CONVENTIONALIZATION OF THE WILD ROSE.
A, FLOWER. B, BUD. C, SEED POD OR "HIP." D, LEAF.



STUDY OF THE THISTLE, RENDERED IN OUTLINE
WITH UPPER SIDES OF LEAVES BLACK.

The laying-out of the leading lines of a drawing are of first importance. No amount of clever technique can atone for errors of proportion, direction and position. Shapes of leaves or flowers, too, are to be utterly ignored until these main lines are correctly placed.

Commence, then, by a single line for each main stalk, from top to bottom; correct the poise and proportion of these until they are just right. The location of the principal leaves comes next. Each of these should be considered in its relation with spaces above and below itself and the midrib drawn as a single line of proper direction, length and curvature.

If the drawing has been satisfactorily made to this stage, it will show but a few light lines, the upright stems and the center ribs of the important leaves. These lines, however, are the skeleton of the plant, upon which all else depends.

Further procedure will in turn take up the shapes of the leaves, plotting their large masses, at first very faintly, and ignoring the minor parts till later.

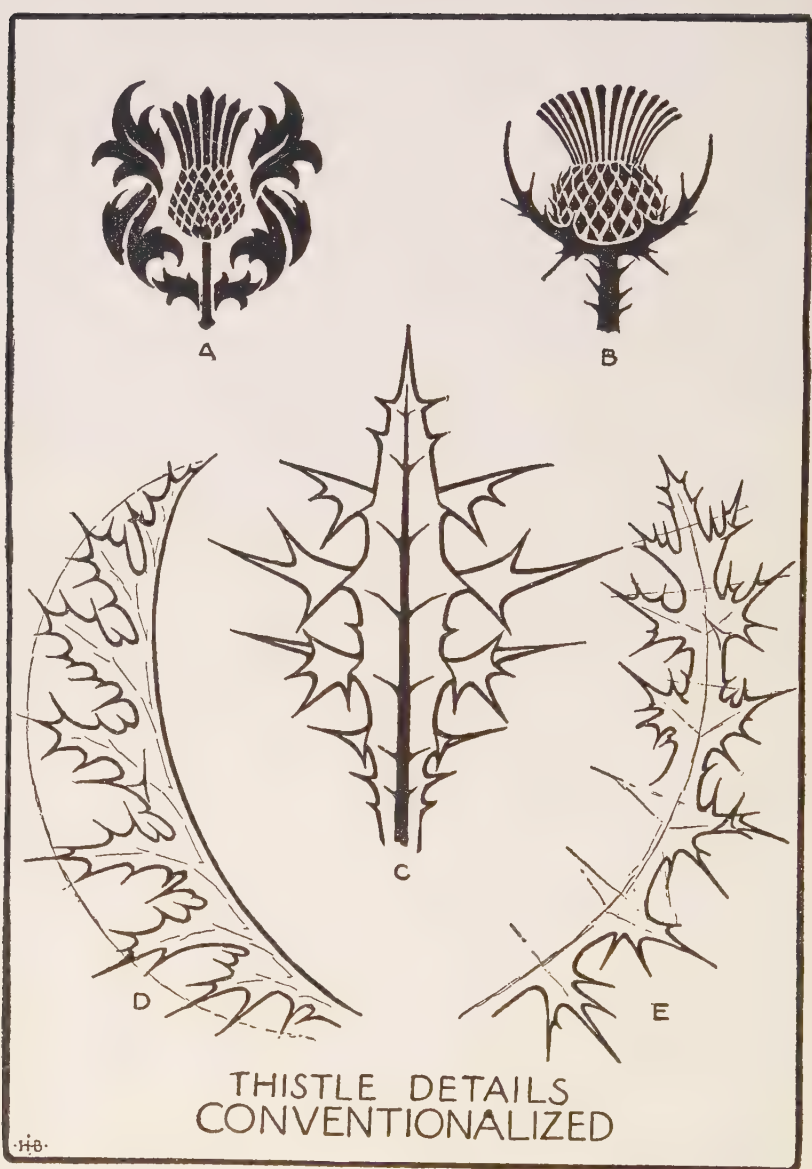
Smaller leaves and buds can now be placed and drawn as to their general shapes.

At this stage review carefully the steps so far in close comparison with the model. Observe the forms of spaces between parts, as well as the parts themselves. There is as much truth of drawing necessary in spaces left as in forms shown. If the result of your scrutiny is satisfying, the final drawing can be undertaken.

Commencing at the top every detail of the object should be drawn carefully, and lightly, until the lowest part of the plant is reached.

The final stage of the drawing should consist in going over the light outline, accenting it in places and supplying in this final process every bit of the character of the plant possible.

The plate shows another method of treatment. Instead of the final stage suggested in the preceding paragraph, the finishing process here consists of a careful outline rendering in pen and ink. All outer surfaces of leaves are left in outline, while inner or upper surfaces are rendered in solid black with veins left white. A reverse of this process may be tried, the under surfaces being treated in solid black, the upper in outline. This idea can be found happily carried out in many of Miss Ford's drawings in Day's "Nature and Ornament," Vol. 1, in Midgely and Lilley's "Plant Form and Design," and in other works of a similar nature.



CONVENTIONAL THISTLE DETAILS, WITH
GEOMETRY OF LEAVES SUGGESTED.

The accompanying and succeeding plates show various decorative adaptations of the naturalistic studies of the thistle. This plant has been chosen as being one of our most decorative growths. The principles deduced in its treatment, however, are not different from those to be employed in the decorative use of any plant.

These plates to a large extent speak for themselves. Plate 84, showing the large central leaf, suggests arrangements of both flowers and leaves in solid black, suitable, with the white paths between the solid parts, for use as stencils. Such possible use does not, of course, indicate their inappropriateness for other purposes.

The three leaves, covering the rest of this plate, suggest different renderings of these exceedingly decorative forms. The careful planning of the midrib and the spacing and size of the lobes on each side are most important. Whether in straight or curved form, the center lines, branchings and outside limiting boundaries should be faintly but surely plotted, as indicated by some of the finer lines on the side leaves. Although this plant more perhaps than many others suggests to the unobserving confusion and tangled disorder, nothing could be more offensive or amateurish in design than a retreat behind such an excuse in the production of details meaninglessly confused.

The thistle has been used very extensively in mediæval and modern decorative art. We find it recurring constantly in textile, wood and metal design, frequently in excellent taste but sometimes so extravagantly employed as to be a loud example of what to avoid. The student can find in every period of historic design such examples when the worker or designer, or both, forgetting the limitations of material or the real use of the object, allows his own conceit to stifle good judgment and taste. "Rightly understood, the conformation of an ornament should be in keeping with the form and structure of the object which it adorns, should be in complete subordination to it, and should never stifle or conceal it."





DECORATIVE USE OF THE THISTLE WITH
FORMAL AND INFORMAL CONVENTIONALIZATION.



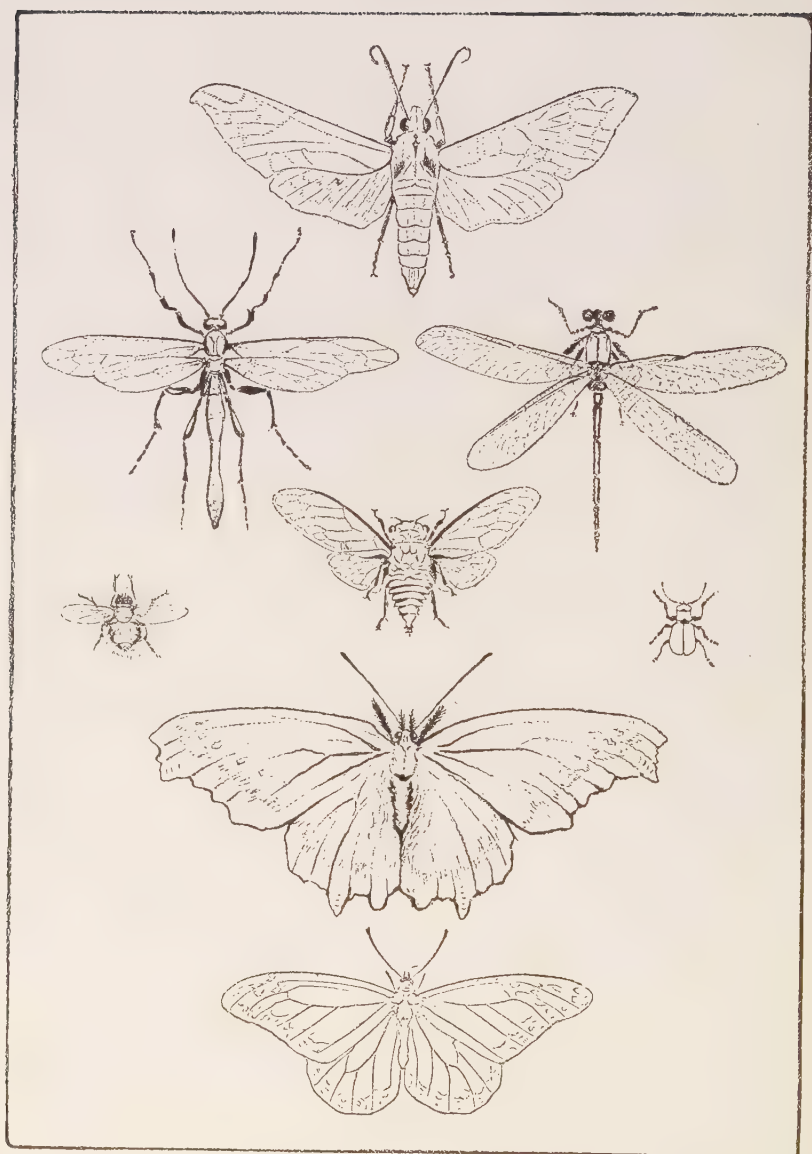
The two accompanying panels are semi-decorative modifications of parts of the drawing in Plate 82. The changes of form are slight and only sufficient to adapt more satisfactorily the plant to the panel shape. The procedure in drawing should be similar to that already described; the final steps, however, consist of brush work in solid black, either for plant or background.

While these panels suggest free positions of the plant sprays, try also several formal bisymmetrical arrangements in black and white within similar upright oblong frames, striving for as beautiful decorative effect as possible.

Other treatments of a plant drawing might be

a rendering in two or three values in pencil or wash, a combination of one or two tones of wash with pen and ink outline and solid black. Any or all of these methods gain further interest by execution on tinted paper, with possibly occasional touches of white.

The adjoining Plate 86 shows further decorative uses of the thistle. In the upper circle is an informal conventionalization permitting many variations in values and color. The borders at the sides are composed of the simplest elements and point the way to a wide range of experiments of a similar order. The central blossom balanced by two leaves was suggested by a tiny emblem on an old English coin. The two old German motives are adapted from reproductions in Lewis F. Day's "Nature in Ornament." The lowest figure may be used as a tailpiece.



STUDIES OF INSECTS IN ACCENTED
PENCIL OUTLINE.

Insect Motives in Decoration.—The butterfly, bug, beetle or other insect is almost invariably an excellent subject for study in conventionalization and adaptation to design uses. It is vastly more desirable to study these insects directly from nature than from prints of any kind.

The delicate but sharp makings of the actual body and wings convey much more clearly the sense of construction necessary to any good design than can a printed picture. Viewing the real insect from different angles and under different lightings increases the interest and excites a greater decorative desire than can be aroused from the unchanging product of the printing press. Lacking the real specimens, any good type of color print is by all means desirable.

The main divisions of the body and the important ribs of the wings are the necessary parts to be accented in any well-thought-out insect decoration. It is amazing how crude the notions of quite mature students are shown to be by their drawings in these respects.

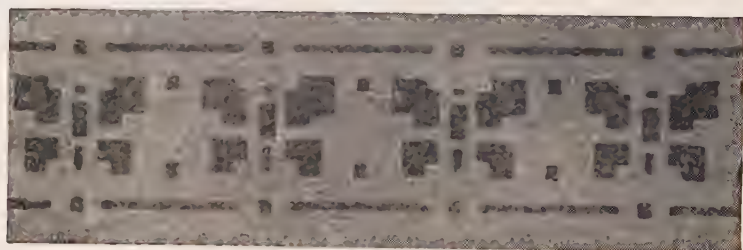
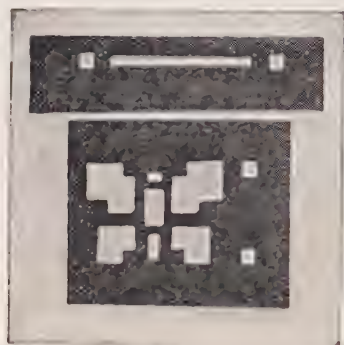
The size of the body compared to the wings, the relative position of each to the other, the size, placing or possible discarding of the "feelers"—these are some of the vital things to be very carefully studied. Several efforts from each student are none too many to expect before a really good decorative insect can be evolved.

Not only may the whole insect make the decorative unit, but details of the wings, body or other parts may separately serve such a purpose.

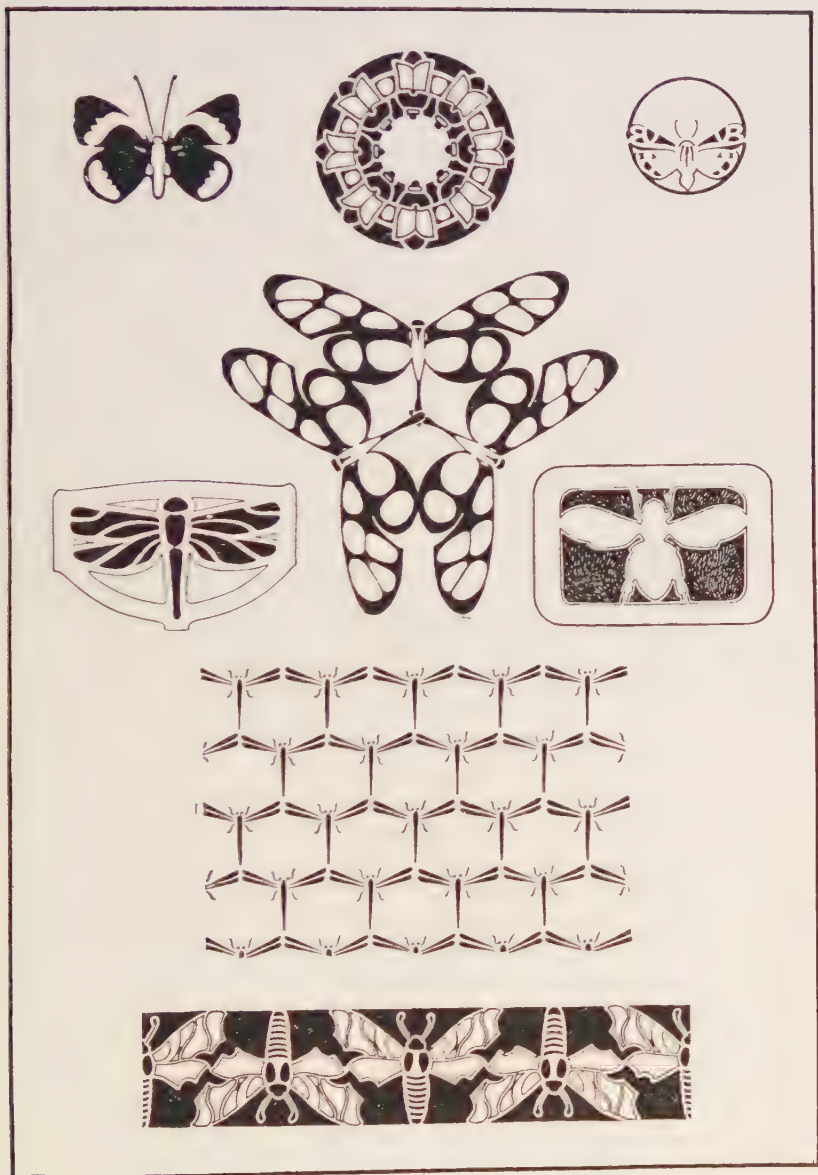
Nature and nature's principles are the guide, but are not to be followed in the direction of pictorial reproduction except in a first study or two. The suppression of details antagonistic to a good decorative unit is an important part of designing which is very difficult for some to understand. Especially is this so with many high school and college students whose work in biology demands exact drawings of details barren of æsthetic interest.

The preparing and cutting of the stencil or wood block or the reproduction of the design in metal or other medium need not be enlarged upon here, owing to lack of space. The interest of each student should be appealed to and allowed within reasonable limits to be the guide toward the particular decorative development desired.

With adequate time, a problem of this kind should be tried by each student in its various adaptations to wood, metal, weaving, printing, carving and other crafts. The possibilities open to one are limitless.



INSECT FORMS ADAPTED
TO STENCILING.



DECORATIVE TREATMENT AND USE
OF INSECT FORMS.



THE CAMERA CAN BE OF GREAT AID TO THE RESIDENCE
IF INTELLIGENTLY USED WITH PROPER MATERIAL.

The decorative stimulus one receives from the study of insects is equaled in the study of shells, though with distinctly different types of forms. Plate 92 shows reproductions of photographs of some of these common but beautiful forms. Every position from which they are viewed presents new patterns and delights to the eye. The humblest shell often is better and finer in its decorative message than the elaborate and startling curiosity. The shapes of these objects present clearly to us the laws of symmetry and rhythm in their most refined forms. The marvelous rhythms in size and color, usually indicative of the successive growth of the animal; the system of radiation formed by lines, grooves or raised spots of exquisitely graded sizes, all these and many more evidences of consummate order make attempts at description quite inadequate.

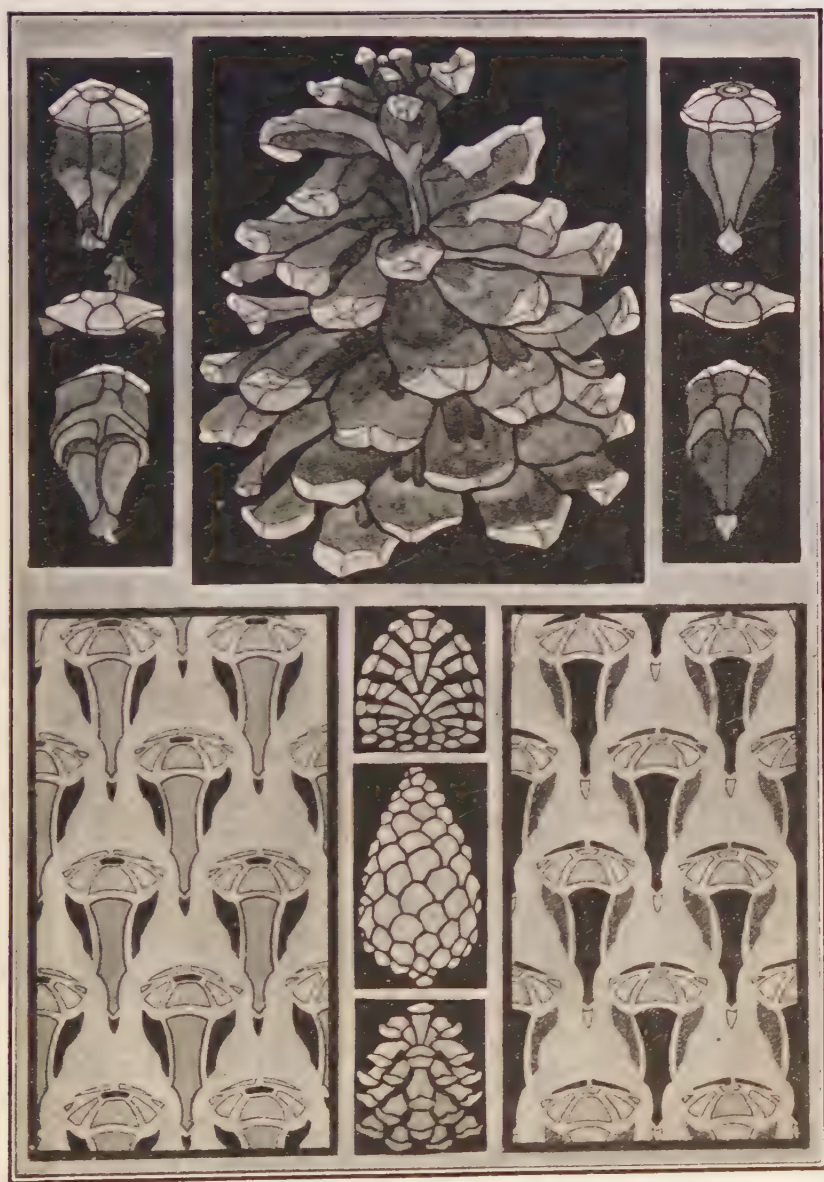
In Plate 94 are shown a number of interpretations of the shells on the previous plate. These are done in various ways, in pencil, wash, and pen and ink. Chinese white is touched on the gray paper drawings. The three conventionalized forms at the lower edge of the plate are worth studying and emulating, as is also the accompanying border based on a similar shell form.

In the same spirit with this butterfly and shell study with its analysis, dissection, conventional treatment and application to decorative uses are the pine cones on Plate 95. The large drawing at the top, an old cone of the Italian pine, offers an excellent study in free-hand drawing. At the left are three of its natural scales which appear at the right conventionalized. These are all made on black paper with opaque water colors, a most effective method for producing design studies. In the center, below, are three smaller cones of different types. The upper and lower are conventionalized to quite a formal degree, while the middle cone is more informal in its conventional treatment. The scales from the upper right panel form two variations of a surface pattern at the right and left of the lower portion of the plate.

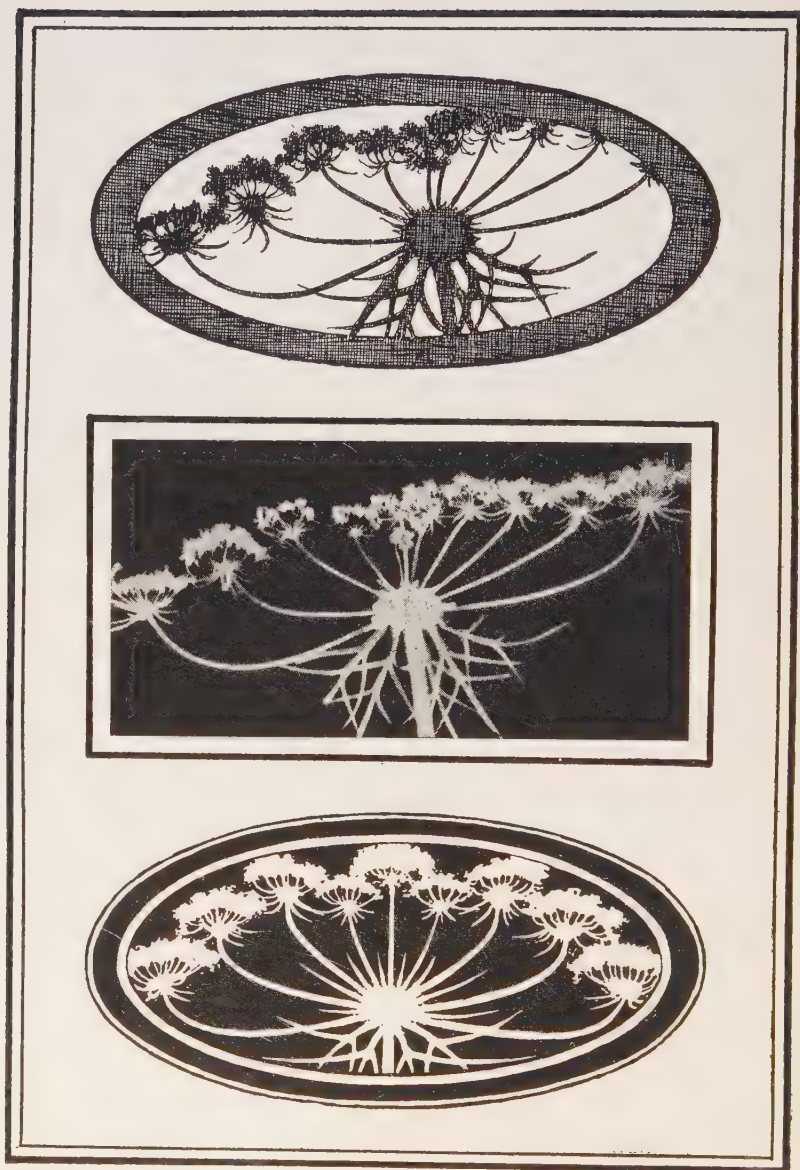




INTERPRETATIONS OF SHELLS IN PENCIL, INK, WASH,
AND CHINESE WHITE ON WHITE AND TONED PAPERS.



ANALYSIS OF THE PINE CONE WITH SURFACE PATTERNS
DEVELOPED FROM A CONVENTIONALIZED DETAIL.



QUEEN ANNE'S LACE, OR WILD CARROT. CENTER PANEL, FROM A NATURE-CONTACT BLUE PRINT. UPPER PANEL, INFORMALLY CONVENTIONALIZED. LOWER PANEL, FORMALLY CONVENTIONALIZED.

Queen Anne's Lace or Wild Carrot is the motive of this plate. In the center is a reproduction of a blueprint by direct contact with the flower. The blossom, being too full of small radiating stems, was trimmed until only those showing in the print remained. The flower was placed in a printing frame against a fresh piece of blueprint paper and the exposure made in sunlight for the time required. Washing in water is all that a blueprint development needs. Since photographic supplies can be so easily acquired, this method of gaining beautiful nature material should be more frequently used.

The middle panel furnishes the material for the upper and lower designs. The upper one may be called an informal or free conventional treatment; the lower is a formal treatment. Each of these has its elements of beauty and each its limitations. Both types of design may be found in the art of many centuries.

The student should produce from one plant motive, as shown in these examples, each of these two types of conventionalization.

As has been mentioned elsewhere, much variety may be shown in the treatment of background and pattern through the different arrangements of dark against light or light against dark. The possibilities of any design are not known until several experiments with different values and contrasts are tried.



JAPANESE FLOWER ARRANGEMENT.



WILD ROSE MOTIVE, SHOWING FOUR TREATMENTS. A, B, STENCIL IN STRAIGHT LINES; C, STENCIL IN CURVED LINES; D, OPEN WORK CARVING; E, PAINTED DECORATION.

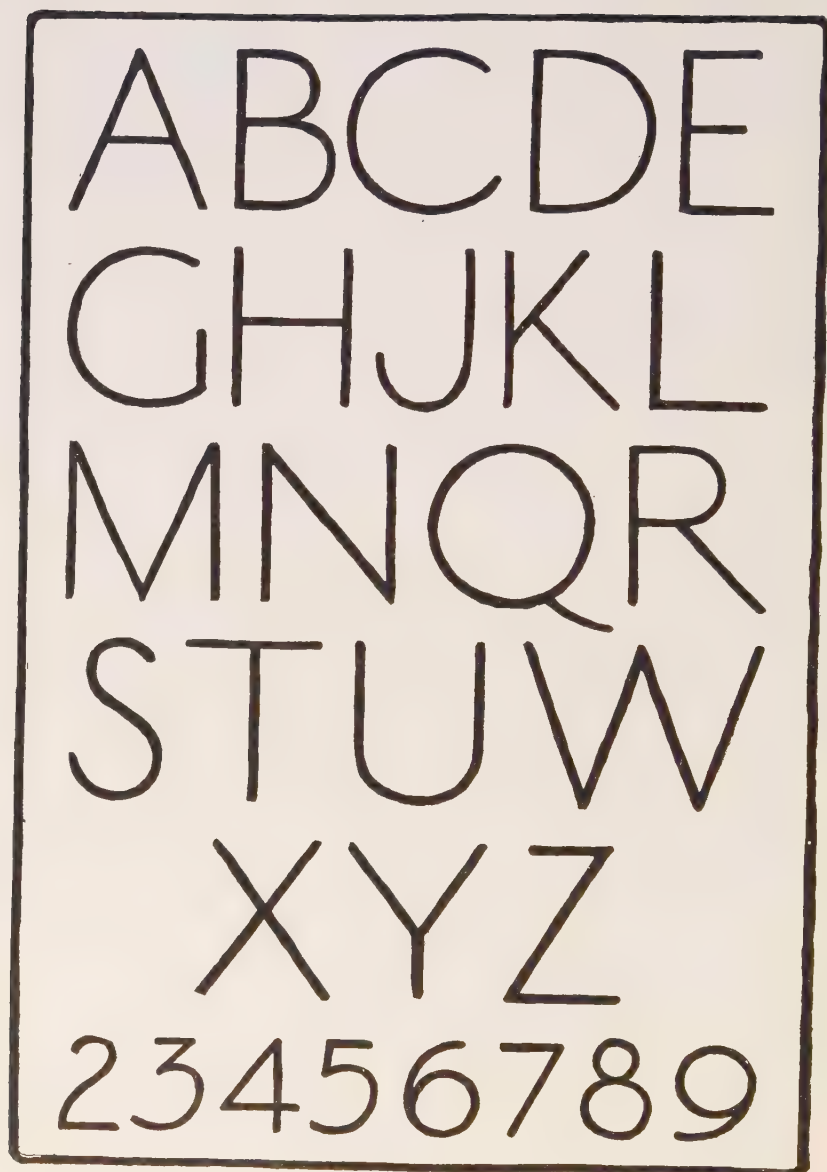
The student of design must realize the fact that material commands serious consideration in the making of a design. The treatment of a form must vary considerably according to its use in wood, metal, stone, glass, pottery or weaving. It is distressing and discouraging to see how this fundamental idea and rule of design is and has been ignored.

Plate 98 represents the same border, adapted to stenciling both for straight line (A, B) and curved line (C) treatment, to pierced or open work carving or chasing (D) and to painted decoration or embroidery (E).

It is suggested that the student take a motive, not too difficult, and set himself the task of designing a panel or border that might serve several uses. This design must then be repeated, with appropriate treatment each time for each of the several uses, materials and processes decided upon. Exercise your powers in using varied mediums.



GOTHIC CARVED CABINET DOOR IN THE LOUVRE



AN ALPHABET OF STROKES OF UNIFORM WEIGHT.
AN EXCELLENT TYPE FOR VARIED DEVELOPMENT.

LETTERING

Good lettering must possess two features. It must be easily read and it should be beautiful to the eye. Every letter has some distinct feature which makes it utterly different from any other. You must preserve and sometimes accent these features. Other parts of the letters sometimes may be slighted or eliminated. To do this well makes for ease in reading, the chief end of lettering. Legibility is more important than beauty if you must leave one or the other out. Both should, however, be present.

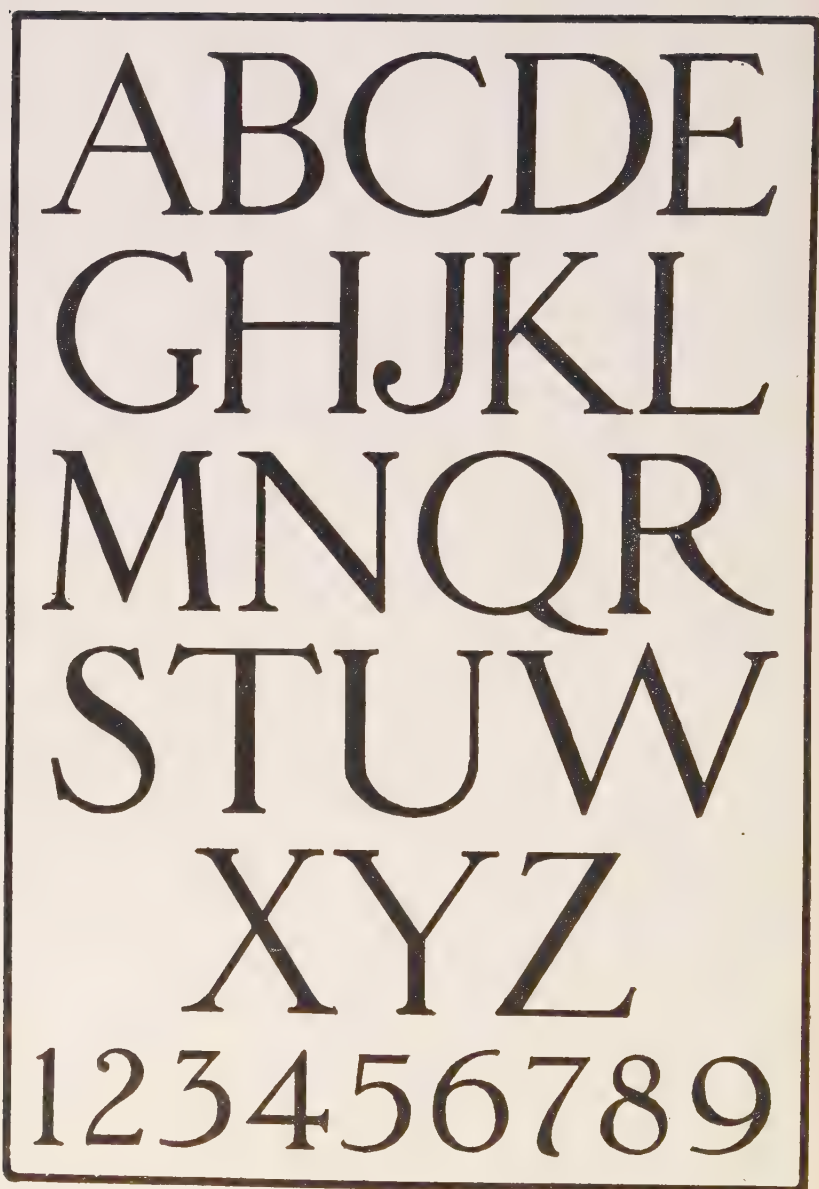
Before lettering any words, the accompanying alphabet, Plate 100, should be drawn and memorized. The top and bottom guide lines of each row are first made and the letters lightly blocked in and gradually perfected.

Notice that these letters are not of equal width. They vary considerably. Notice also that there is a tendency to make the top of a letter a trifle less heavy than the lower half.

Sharp points in the letters A, N, M, V and W are usually extended slightly above or below the guide lines. The same is true of the upper and lower portions of the circular letters.

Vertical and horizontal lines must be made true in direction. The C, G and O and similar forms are best when based on the circle.

In making a line of letters, don't divide up your space into so many equal blocks. Letters vary greatly in width. Draw faint guide lines where needed. Then sketch lightly the beginning and end letter of the whole line. If the line be long a middle letter may be indicated. Other letters are now faintly sketched and tried in place. The first trials will probably not succeed. Go over the letters again without erasing, moving them forward or back in successive sketches until you get the best possible spacing. You may then make the correct letters clear and with a soft rubber clean up your work and finally finish the lettering. Don't plead that your word or words are too long for a space; lettering is elastic and you should try the same word or phrase in several different limits, short or long. Let all your first lettering be with single line letters as here shown. Such plain letters are used extensively in all sorts of best work. All the strokes may be thick in one alphabet or thin in another, but they must remain the same thickness throughout any one alphabet. Practice lettering with pencil, pen and brush.



A GOOD TYPE OF CLASSIC ALPHABET OF HEAVY AND LIGHT STROKES. IT IS BASED ON ROMAN AND RENAISSANCE MODELS.

This alphabet differs from the last in the varied thickness of the parts. We call this a Roman alphabet because it is derived from the inscriptions on the great monuments of the Romans. In two thousand years the general forms of these characters have not been changed or improved.

The thick and thin strokes come from the wide and narrow strokes of a quill or reed pen as used by the ancient scribes or writers. These pens were much like our "stub" pens and made thick or thin strokes as they happened to be used. (Page 107.) In this way came about the usual forms of these letters. Thus: Vertical lines are thick. Horizontal lines are thin. Oblique strokes downward from left to right are thick. Opposite oblique strokes are thin. Circular letters are thick at the sides.

There are a few exceptions to these rules which you should note carefully by comparison with the alphabet.

Memorize the shapes of these letters. As in the previous page, any letter which is missing here may be easily made by leaving off a part of some other letter nearest it in shape.

One difference between printing type and lettering will become apparent if one considers that projections of letters, as the slanting portions of an A, V, W or Y, cannot in type extend over the space of another letter. In lettering this is obviated.

The following is suggested as a good method to pursue in becoming familiar with this style of letter:

Place over the straight line alphabet which you completed in ink from Plate 100 a sheet of thin paper, permitting this alphabet to show through. With lead pencil draw faintly guide lines as before at the tops and bottoms of the letters, and then in pencil redraw this alphabet, but instead of making it in single lines, supply by double lines the thick portions where they occur in the letters in the accompanying Plate 102. It will require intelligent adjusting and experimenting to make these broad double line portions of the letters in just the right place. Complete the entire alphabet thus.

Do not draw too heavily in pencil, as the work may have to be corrected. When satisfactory, it should be gone over in ink.



PATER NOSTER
QUI ES IN COELIS, SANCTIFICETUR
NOMEN TUUM, VENIAT REGNUM,
TUUM, FIAT VOLUNTAS TUA, SICUT
IN COELO, ITA ETIAM IN TERRA. PAN-
EM NOSTRUM QUOTIDIANUM DA
NOBIS HODIE, ET REMITTE NOBIS DEB-
ITA NOSTRA, SICUT ET REMITTIMUS
DEBITORIBUS NOSTRIS, ET NE NOS IN-
DUCAS IN TENTATIONEM, SED LIBER-
A NOS AB ILLO MALO, QUIA TUUM
EST REGNUM, & POTENTIA, & GLORIA
IN SEcula, AMEN

In planning lettering to cover more than one or two lines it is necessary to plan the various masses or areas of the lettered surfaces. These should be blocked out in trial sketches without any attempt at making the letters themselves at first, these masses showing merely as gray tones. When these masses look well the letters may be substituted for them. In any well spaced and well lettered area the effect of a general uniform gray tone is preserved.

This plate is set in a beautiful style of Roman type, designed by Frederick W. Goudy. Several things are to be noticed in this composition and to be taken as models for study and emulation.

The panel itself is beautiful in proportion. Its border is chaste and dignified, lending to the lettering just enough finish without undue conspicuousness. In the border we see an application of the first problem in this book. Note that the spacing between the two pairs of lines is slightly larger than that between the outer single line and the middle pair.

How beautiful is the arrangement of these letters one cannot realize without individual effort with similar problems. There is the effect of an even tone of gray over the field of lettering which should be one of the decorative aims in such a problem.

The forms of the individual letters here vary in minor respects from the alphabet shown in Plate 102. This will be found the case frequently in other instances, as the classic Roman alphabet has many slight modifications in emphasis of shading, degree and positions of curves, style of serifs, and other details.

The design below is the mark of Giacomo Cornetti, a Venetian printer in 1586.



A B C D E F G

H I J K L M N

O P Q R S T U

V W X Y Z &

a b c d e f g h i j

k l m n o p q r s

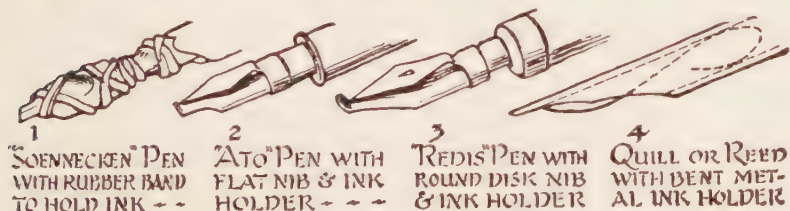
t u v w x y z 3 ::

The present problem consists of practice with the flat-nibbed pen. The pen should have a rubber band around it looped just back of the nib. This forms a pocket to contain the ink. The ink should be filled into this pocket back of the rubber band near the point by means of a brush or the quill in the ink bottle, or by another pen. The pen itself should not be dipped into the ink, nor should ink be allowed to gather on both sides of the nib. Sometimes these pens are provided with brass ink containers which slip on to the pen. See cut below.

For lettering with this pen, very smooth paper should be used, the ordinary pencil paper is not fit. The paper should be firmly attached to the drawing board, and the board should be so tipped that the position of the penholder is almost horizontal. In this way the ink flows smoothly on to the paper and will last longer. There is also less danger of a sudden blot. Guide lines should be drawn in pencil with the T-square, but letters should not be sketched in pencil previous to the pen work.

For preliminary practice try a very large number of strokes of the pen in different directions. For example, make rows of vertical strokes then of oblique strokes first toward the right and then toward the left, then a row of horizontal strokes. Try this same series of strokes both with the pen held so that the nib is horizontal and again so that it is oblique. These two positions will give different degrees of shading and develop alphabets of different characteristics.

Try to be patient and thorough in this practice until you become quite familiar with the method of using the pen and the results which come from these different positions of strokes. Following this practice, take a new sheet of very smooth paper or bristol board, lay out guide lines in the spacing suggested on the adjoining plate, and try reproducing this alphabet as shown here. Be ready and willing to try this alphabet several times, as good results cannot come from the first efforts. Follow this with exercises in lettering combinations of words in this style.



1
"SOENNECKEN" PEN
WITH RUBBER BAND
TO HOLD INK - -

2
"ATO" PEN WITH
FLAT NIB & INK
HOLDER - - -

3
"REDIS" PEN WITH
ROUND DISK NIB
& INK HOLDER

4
QUILL OR REED
WITH BENT MET-
AL INK HOLDER

Cum ēēt annorum nonaginta septem.
apparuit ei dñs ihs xp̄s cum discipuli
suis et dixit ei. Veni ad me. qua temp̄
est ut epuleris in conuiuio meo. cum
fr̄ibus tuis. Surgens autem ioh̄s. cepit
ire. Sed dñs dixit ei. Dñica resurrecti-
onis mee die. que post quinq; dies
futura est. sic uenies ad me. Et cum
hec dixisset. celo receptus est. Ulemente

PERFECT ILLUMINATION IS ON-
LY WRITING MADE LOVELY, BŪT
TO MAKE WRITING ITSELF BEAU-
TIFUL-TO MAKE THE SWEEP OF
THE PEN LOVELY- IS THE ART OF
ILLUMINATION."

This method of lettering and the broad nibbed pen are both of very great age and were probably employed in the centuries before the Christian era. Ever since that time it has been constantly in use, but especially was it the chief method of lettering with the monks and scribes during the great period known as the Dark Ages and the mediaeval centuries. The forms of the letters of the present alphabet are in many respects to be traced back to this method of lettering of the early centuries. At the present day, this method of lettering is extensively employed in various lines of commercial and decorative art.

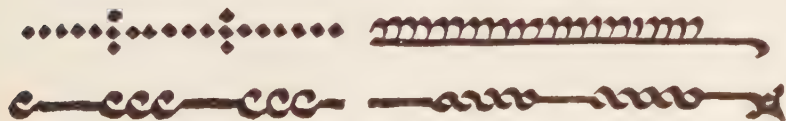
The "Soenicken" pen is to be had in several sizes for this work at most art stores. Other excellent pens for lettering are the "Ly," "Redis," and "Ato," imported by Hartmann, 28th St. near 4th Ave., New York City. See page 107.

Choose an adage or aphorism that may be lettered with the flat-nibbed pen in the style of the adjoining or the preceding plate. Make your guide lines on smooth bristol board with the T-square. The paper should be fastened securely to the drawing board with thumb tacks and must be perfectly horizontal. The T-square should be held against the left edge of the board in making the horizontal lines. Be sure that your pencil is very sharp and that the lines are fine and delicate, as well as accurate in their positions.

For preliminary practice, sketch out on another piece of rather thin paper, the spacing of the letters so that you will be fairly sure where the words and lines will begin and end. Then try it on the bristol board with the ink and pen, directly. Be prepared to do this motto several times in order to get it as good as possible.

The lettering of the texts of the adjoining plate is by Miss Elizabeth H. Webb, to whom acknowledgment is gratefully accorded.

Decoration for hand lettered texts should be made with the same kind of pen, directly and freely, as below.





FOUR BOOKCOVERS. THE TWO UPPER ARE FROM BOOKS OF THE 16TH CENTURY. THE OTHERS BY MODERN DESIGNERS.

In the succeeding three plates we are presented with the problem of the bookcover and bookplate, both of which must employ lettering, sometimes quite extensively.

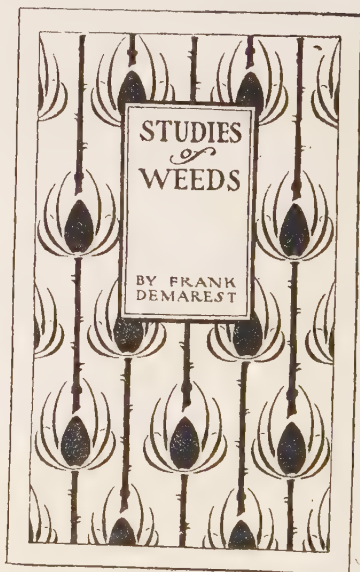
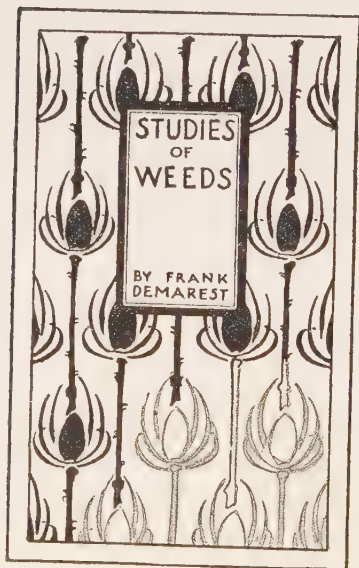
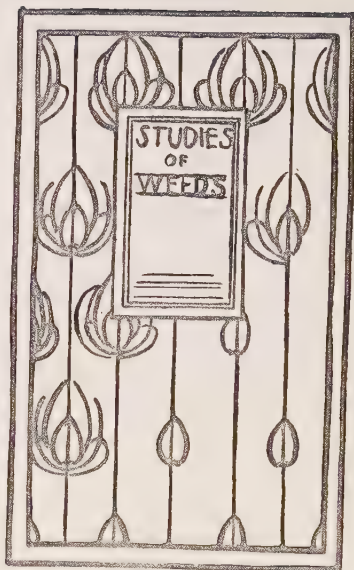
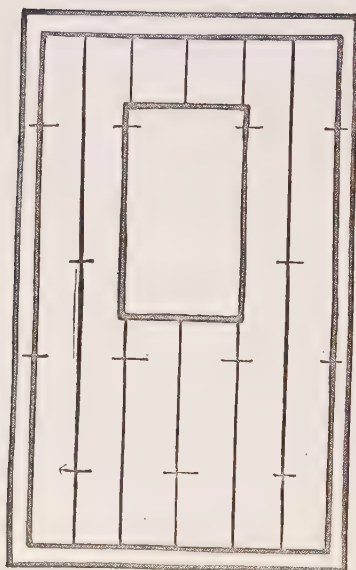
The bookcover since the early days of printing has been a tempting problem for the designer. Some of the most famous artists have worked upon it. In past centuries, the fine bindings were of rich materials and superb workmanship. In modern times with the incessant production of books at small cost the bindings are of cheap cloth or even paper, upon which attractive and at times excellent designs are printed. In Plate 110 we see two typical examples of fine covers of the 16th century and two cloth covers of modern books.

In the first of the upper pair we have a design made of the simplest elements. The use of the plain border of parallel lines, a repetition again of our first problem in design, is notable. Its corners are accented by a little leaf motive. The field is covered with a surface pattern made of three elements, the initial F, for Francis I, the royal fleur-de-lis, and a small circular spot. The royal coat of arms within a shield is centered on the cover. This design in gold on beautiful leather could not be finer of its kind.

The second binding, also of leather, is by the famous binder, Grolier. The interlacing bands and strapwork are very characteristic of the 16th century. This style was popular with various modifications in Italy, France and England. In this cover the bands were of a different color than the ground work and the outlining was in gold. All was the perfection of leather work. We have today artists who are producing masterly leather bindings that bear critical comparison with these works of the great craftsmen of other times.

For the low priced book, cloth, called buckram or book-linen, takes the place of leather. Paper also is used. These are pasted to cardboard of proper thickness. The designs are stamped on the covers with brass plates engraved from the designers' drawings. The two lower covers are of this class.

The modern book cover frequently has to suit a passing taste and to suggest the contents of the book. Quickly ordered, hastily conceived and executed for a popular novel, thousands of these covers are yearly produced and soon forgotten. Others are on the contrary given real thought and care and though in cheap material are artistic achievements.



PROGRESSIVE STEPS
IN A COVER DESIGN.

The lettering on a book cover occupies a conspicuous place and must be legible. Its size varies according to specific needs. Its position is usually toward the upper part of the cover. Plain Roman lettering is the most acceptable style with few exceptions. In addition to the lettering we often expect and find a touch of decoration or illustration. In our "Travels in China" the ornament is a Chinese symbol, while our Spanish Travels shows a decorative panel treatment of the Giralda tower of Seville.

For submission to publishers it is customary to make these designs on book cloth stretched over cardboard exactly as in a real cover. The designer must procure the book-linen and mount it thus for his design.

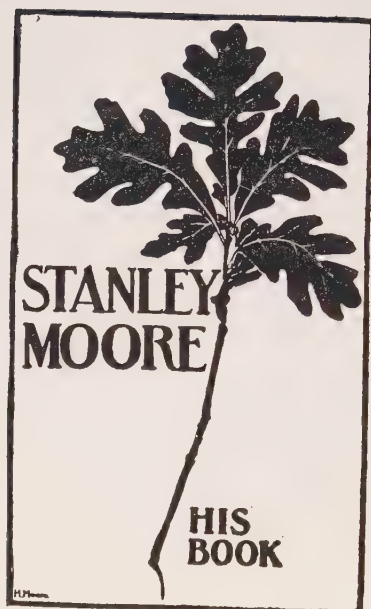
The first design, after a rough sketch, is accurately executed in outline on paper, not too thick. This must then be transferred to the sample cloth cover. Usually rubbing the back of the paper with crayon, either of dark or light color as may be necessary for the cloth surface, will permit this transfer to the cloth, by going over the lines of the design with sharp pencil when held in place. The final design is painted on the cloth with opaque water color, known as body color or tempera. Ordinary water color mixed with Chinese white will do. India ink will usually work well with brush, but pen work is next to impossible on cloth. Corrections are very difficult. One must be sure the first time.

Publishers object to many colors in one design on account of expensive engraving and printing.

A separate brass stamp is cut for each color. Certain colors and gold are costly and must be used sparingly and in a concentrated portion of any design. The back of a book is a part of the design and is expected by the publisher.

In Plate 112 is a suggested series of steps for a very simple though pleasing cover. Such steps and experiments must precede every finished design.

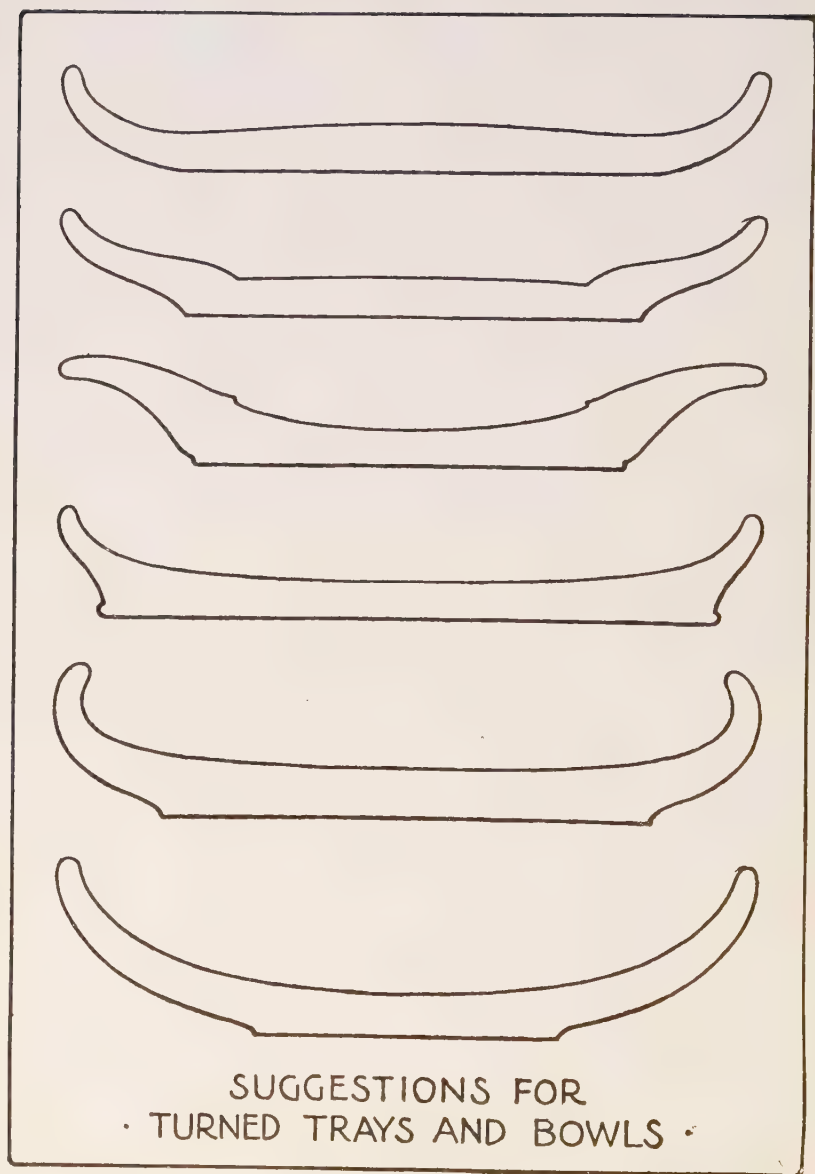




Book plates make a good variation of the combined problem of lettering and decoration. A book plate should be a satisfying and refined mark of ownership. Book plates have been used for a very long time and the beautiful and rare are hunted eagerly by collectors. The four examples here are good types for students' attention but by no means give one a sense of the range of ideas and execution that even a small collection would show. Detail should be reduced to the minimum here and the lettering, too, should be most direct, brief and clear. Every good book plate and good book cover is a fine composition. The best possible lesson in book plates is to see as many as possible, either in collections, private or public, or in books which have appeared on the subject.

Printers' marks frequently show as fine design as the best book plates. They offer a fascinating subject of research and study to the student. The mark of Aldus, the famous Venetian printer of the sixteenth century, is reproduced below. See also Page 105.





DESIGN IN THREE DIMENSIONS

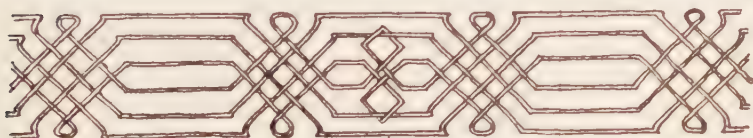
An excellent problem for wood-turning is the tray or bowl. Plate 116 shows six suggestions for such a problem.

In considering this object, which it is assumed will be made later, consideration must be given to the size of the wood from which the article is to be made. Its thickness will regulate the depth of bowl possible; its width, the possible diameter. The shapes suggested in the plate show the simplicity of forms which is always desirable. Complicated curves and combinations of angles and curves are to be avoided. Large simple sweeps of line, based on the elliptical or on the oval curves are preferable to broken and confused contours, both from the standpoint of practical making and final appearance.

Modifications of the forms here suggested are easily made either as to depth or diameter, or both, giving wide range of shapes.

Practical details as to the exact thickness of wood at the edge of the bowl or in the center can be easily settled by a teacher of turning, whose co-operation should be sought.

Each student should, after a general consideration of this problem, produce an individual sheet of six trials of the type of tray or bowl he desires to make, made full size, the best of which shall, after correction, be carefully redrawn. A second drawing, in duplicate, or an accurate templet made of thin card, should be finished for the turning lathe. Title and maker's name should be well lettered and placed and a margin line drawn.





VASE FORMS SHOWING FINE PROPORTIONS AND THE
USE OF THE CURVES OF THE ELLIPSE AND OVOID.

In the pottery shapes of the ancients we find some of our most beautiful forms. This is especially true of the Greek vases, some types of which are shown in Plate 118.

The most beautiful curves, whether simple or compound, are those of the ovoid and ellipse rather than the circle (Plate 46). In the best ceramics we find these curves used. It will also be noticed that the simple and compound curves do not merge into each other, but always, in the best examples, meet either at an angle or are interrupted by some step or fillet. See also Plate 120. The flowing of one compound curve into another without a break is usually weak and most unpleasant in appearance. The proportions of the best vase forms are always beautiful, and frequently show an adherence to some rule for the relative sizes of the parts. An application of this idea is shown in the next problem, Plate 120.

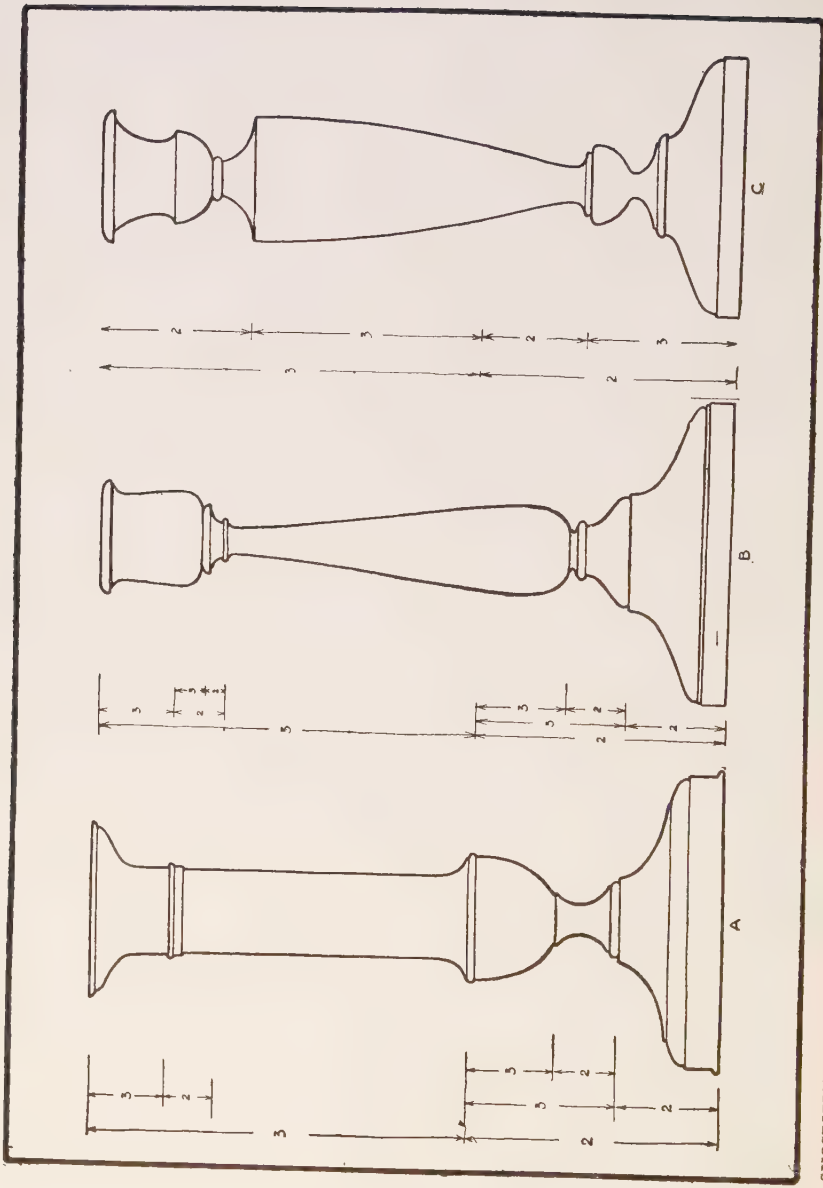
The upper part of Plate 118 shows some modern forms of bowls and vases. Many potteries today are producing very excellent wares, simple and refined in proportion and curvature and beautiful in textures, glazes and colors.

Decoration should be most carefully guarded and restricted in relation to pottery. We have had during the 19th century most distressing examples by the thousands, from all countries, of over-decorated ceramics, frequently planned as household ornaments only and so used. China intended for use in that period, when thought beautiful, was too often merely expensive in its gaudy or over-elaborate form and decoration.

This, of course, was not always the case. The less expensive wares were and are frequently the best for the simple reason that decoration is reduced to a minimum. Unfortunately space does not permit the giving of examples in either class. It is hoped that the art student may be led to look into the history of this craft, where abound innumerable lessons in design.

Plates, bowls, vases and similar objects should obey the laws of use and beauty stated at the beginning of the chapter on Design, page 13. Not only should the forms and textures be convenient, practical and beautiful, but the decoration never should obtrude or dominate. Naturalistic pictorial decorations are to be avoided.

It seems as though a better spirit is pervading our potteries today both here and abroad. Whether this is generally true or not, it is certain that wares simple and beautiful in form, in surface and in color can be found now more plentifully than a score of years ago.



SUGGESTIONS FOR CANDLESTICKS WITH SCALES OF PROPORTIONS. THESE OBJECTS MAY BE IN WOOD OR METAL.

In the consideration of any problem whatsoever two most important steps are those of proportion and contour. In each of these the use of material and method of construction of the object to be designed must first be considered.

An excellent problem in design and applied shop work is that of a turned candlestick. Other forms of candlesticks also offer an attractive and useful field of effort which would easily take up more space than is here available.

The use of this object entails a base, shaft and cup for the holding of the candle. The material must be such as can be turned in a lathe. The form, therefore, must be circular. While a candlestick may be low, the illustrations show tall shapes suggestive of the Colonial type.

Considering the matter of proportion, the ratio of two parts to three will be found most useful. A reference to the scales of proportions at the side of each drawing will show a method of arriving at some general divisions of the object. Such ratios can be still further divided for smaller details. Such a ratio is useful in so far as it is used with judgment and reasonable taste. It cannot produce satisfactory results inevitably.

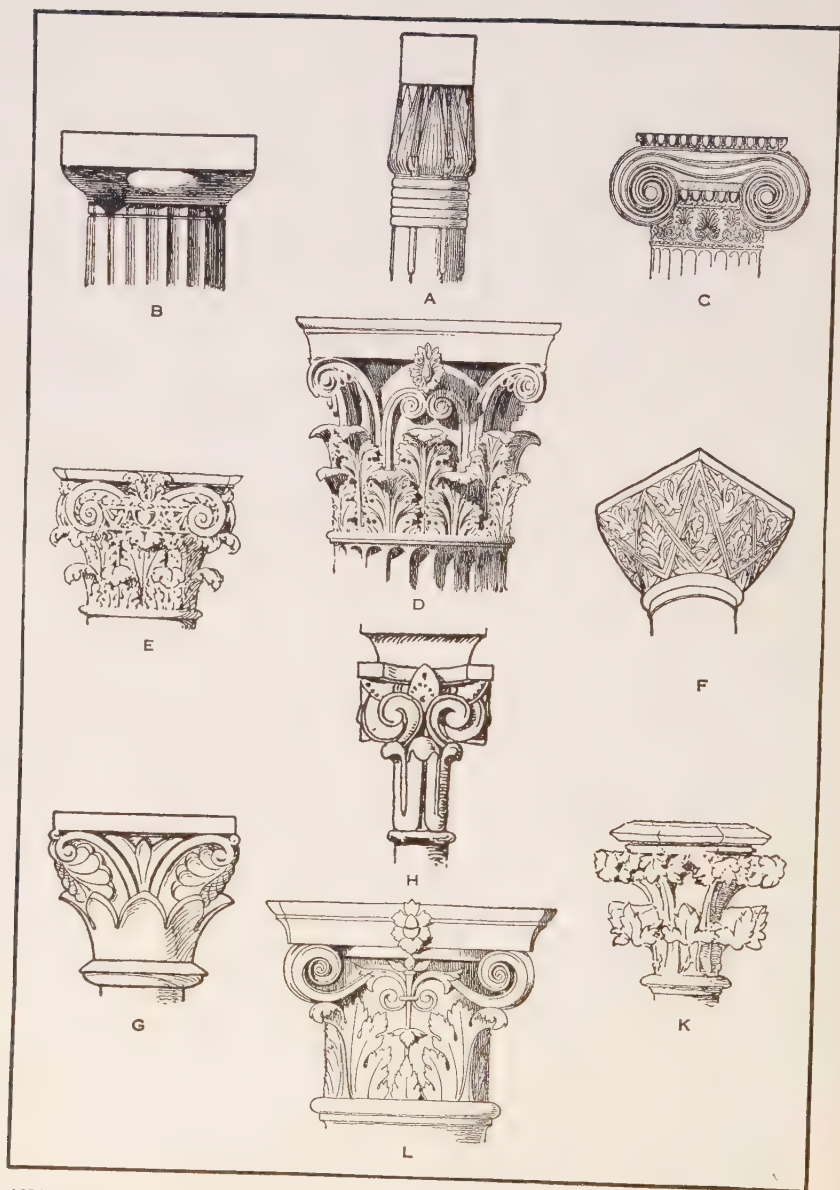
The matter of contour is of equal importance, the two main points to bear in mind being a suitable variety of curvature and an avoidance of circular arcs. See Plate 46.

The following rule is very important: Any joining of a C and an S curve, or of two S curves, must always be at a distinct angle, preferably a right angle. The addition of a small step, band, groove or fillet at such a junction is frequently a great improvement.

It will be noticed that in the base, shaft and cup of each of the drawings in Plate 120 there is a decided predominance, both in size and shape, of one part over the other two. This is a proper application of the principles of dominance and subordination. Again in each of the other two parts there is some detail or portion which distinctly dominates, bearing out the same principle.

The objection frequently raised, on account of fire risk, that a candlestick should not be of wood is groundless if a metal socket is provided for the candle. Beautiful candleholders of all kinds and sizes were made of carved wood in other centuries. A turned candlestick in wood may be cast in metal and finished on the lathe.

The general principles given above have universal application.



ANALYSES AND COMPARISON OF THE HISTORIC STYLES.
TEN TYPES OF CAPITALS.

One of the best exercises in acquiring a knowledge of the historic styles is to make a series of drawings showing the same type of object as developed by each of the great periods of civilization. We may call this a comparison or parallel of historic styles. Such forms may be gained from various books, photographs and other sources. The form to be compared may be what you wish, a complete structure, showing the leading characteristic masses, or a detail which embodies enough of the peculiarities of the school to warrant its being shown.

In the accompanying plate is a comparison of styles of capitals from the Egyptian to the Italian Renaissance.

In the Egyptian style, A, we have a representation of the lotus flower, a sacred symbol, constantly appearing in many forms on innumerable objects.

The Greeks used three styles of capital, the Doric (B), Ionic (C) and Corinthian (D). The first was the most used, and the last, the least. The Romans were especially fond of the ornate Corinthian capital and used it constantly, elaborating it still further by adding the spiral elements of the Ionic (E).

With the breaking up of the Roman empire three styles came into prominence, the Byzantine (F), Romanesque (G) and Saracenic (H).

The Byzantine was a product of the civilization of the region of Byzantium, now Constantinople, about 500 A. D. The Romanesque developed in Southern France from the Roman remains of former centuries and spread into Germany and England from the 8th to 11th century. The Saracenic style was a product of Mohammedanism and developed in many forms wherever that religion flourished. Some of its finest examples are found in the palace of the Alhambra, Spain, built about 1200 A. D. A peculiarity of the Saracenic style is its avoidance, for religious reasons, of the use of natural forms.

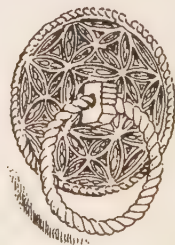
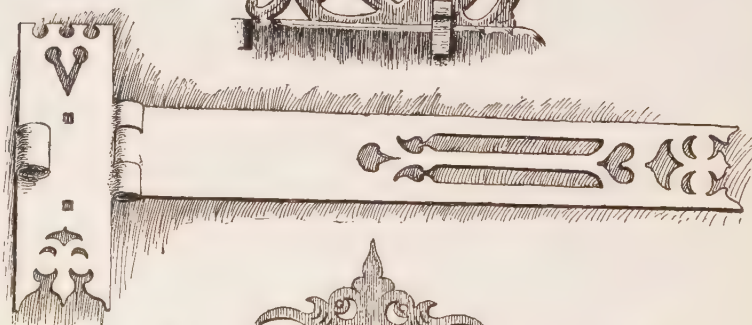
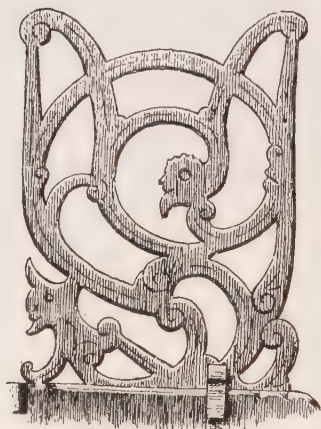
The Gothic style grew out of the Romanesque in Central France about 1150, perfected itself by 1250 and spread into other countries. Some of the ornament is very naturalistic. Many of the most famous cathedrals are in this style.

In the 14th century a rebirth of learning, called the Renaissance, occurred in Italy. Interest in everything connected with ancient Rome was intense. Thus the decorative arts showed a return to the classic styles (I) with certain modifications in each of the several countries to which the styles spread.

MEDIAEVAL
• IRON
WORK •



KNOCKERS
HINGES •
LOCK

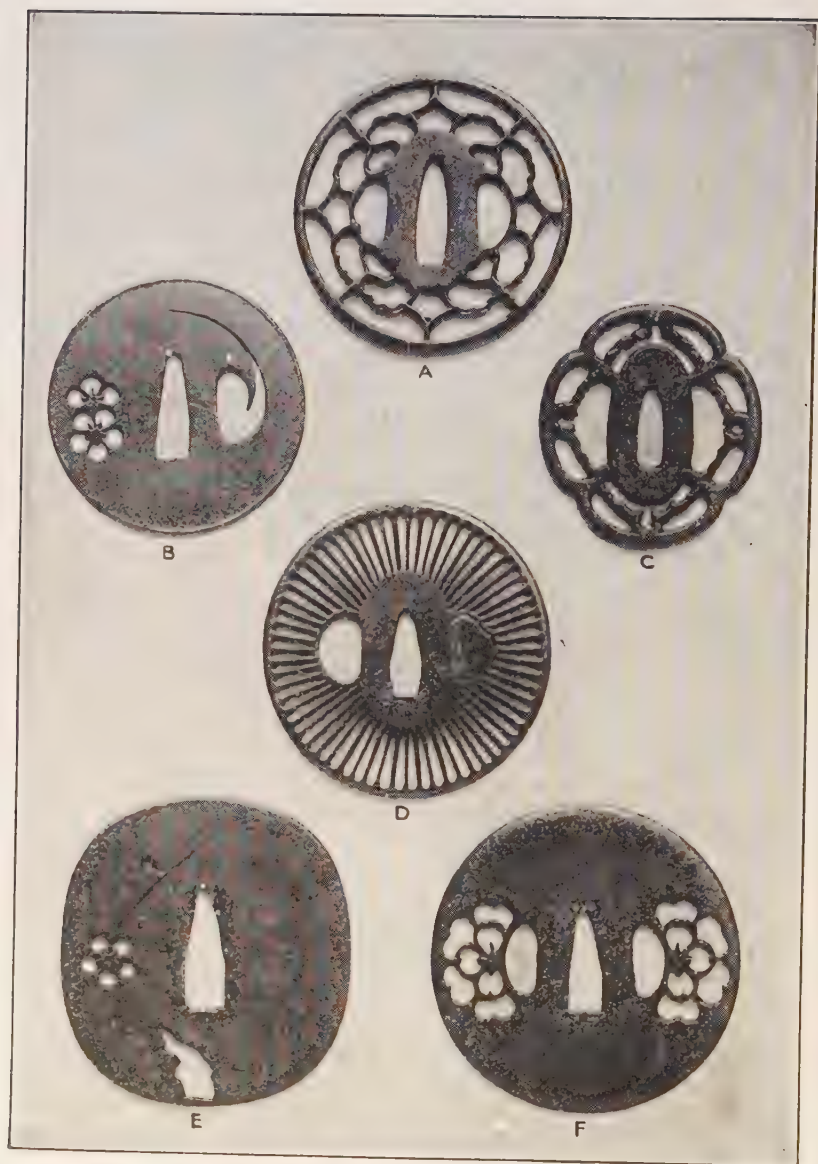


IN THE METAL WORK OF THE MEDIAEVAL CRAFTSMAN
WE FIND SOME OF THE BEST EXAMPLES OF THE RIGHT
USE OF ORNAMENT.

Iron work in early mediæval times offered an extensive field to the blacksmith when strongest barriers were needed on every hand. It would seem that hinges with their accompanying straps and bands were regarded as of great importance for strengthening doors within and without. The designs are many, the crescent hinge being most plentiful. The grille also was an important protective feature, guarding sacred parts of church interiors.

As the Gothic period progressed, the blacksmith in whose hands iron had been beaten, bent and welded into innumerable forms adopted the use of prepared dies or stamps, into which the hot iron was struck as wax into a seal. The most elaborate and beautiful examples of this method, as perhaps of any iron work, are the celebrated hinges on two of the west portals of Notre Dame in Paris. They are regarded as the grandest and most colossal work of blacksmithing of that age. Another important work in the same manner is the so-called Eleanor grille in Westminster Abbey, dating 1294. The old blacksmith methods of working iron while hot were from this time on largely superseded by a use of the file, saw and drill. The pieces were held together by bolts and rivets, or they were mortised and tenoned as in carpentry. Sheet iron, pierced and hammered, comes into use also. Grilles composed of quatrefoils or trefoils are common, with tracery pierced from sheet iron frequently riveted in the lattice openings.

Doors are often covered with interlacing bands of strap iron, the lozenge openings being filled with rich ornament in sheet metal. Tracery is produced in pierced iron at first in one thickness as in a Chartres example, and then in superimposed layers. Handles, locks, knockers, bolts, hinges, etc., are now treated with astonishing delicacy, with crochets, pinnacles and other Gothic ornament chiseled and filed from the iron in full relief. Some of these works rival contemporary gold and silver smithing. Keys and nails, no less, received a full share of artistic treatment, and many of the French coffers of iron are especially notable in their reflection of architectural forms. A particularly rich piece of iron work of this time is the celebrated well cover in front of the Cathedral at Antwerp, popularly attributed to Quentin Matsys, the painter. The grapevine is remotely the motive of much of the work to this time. In the sixteenth century the thistle seems to have sprung into popularity and rapidly replaced the vine in the designs that followed. Practically all the German work between 1550 and 1650 was indebted to the thistle for motive.



JAPANESE SWORD GUARDS IN IRON, SHOWING
PIERCED DESIGNS. (JOHN HERRON ART INSTITUTE).

The objects illustrated in Plate 61 are known as sword guards. They are a part of the Japanese sword, coming between the handle and the blade and safeguarding the hand from injury.

Japanese ornament is remarkable in its frequent arrangements of forms which impress us unconsciously as being in balance through feeling rather than through an obvious bilateral symmetry. Entirely different details in size and shape are skillfully disposed to give a sense of repose more subtle than the evident pairing of two similar forms. Such an arrangement has elsewhere been termed *occult balance*. No absolute law can be given for such a balance. The eye is held by it in the center of the composition, equally attracted by the various forms and spaces. Some details, though small, may, by their complex character, exert a greater attraction than larger simpler forms. Direction of lines, both straight and curved, strongly affect the eye and thought, skillfully leading them as the designer may choose.

The range of forms chosen as motives by the Japanese artist is almost limitless. Birds, beasts, fish, insects, leaves, fruit and flowers are plentiful, while geometry is frequently resorted to. The elements, wind, snow, rain, swirls of water and cloud are sometimes represented, even in metal.

None of these sword guards measure more than three or four inches across, in which small area the artist gave his fancy play, sometimes with purely decorative forms, but more frequently, perhaps, with a touch of humor and symbolism.

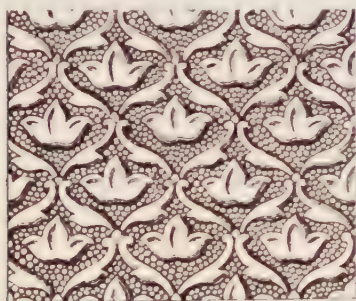
These sword guards reached a degree of mastery in metal which European workmen have never excelled, and seldom equaled.





CARVED WOOD PANEL FROM INDIA TYPICAL OF THE
INGENUITY AND SKILL OF HER CRAFTSMEN.
(JOHN HERRON ART INSTITUTE.)

This carving is characteristic of the woodwork of certain parts of India. Though elaborate, its many curves are so composed that they rest rather than irritate the eye. The student should be cautious, however, about imitating the intricacies of this style. It is quite apart in spirit from our ways of thinking. Indian art often is over-elaborated and offers dangerous temptations to an ignorant enthusiast. In this panel the upper half is much the better. The lower portion is too confused in detail and unfortunate in the form and decoration of the main central stem. The differences between the many features of this piece of work and panels of other periods and peoples it would be fascinating to compare, were it possible to do so in our limited space. The way the vine grows, the peculiar shapes of the leaf forms, the beautiful running border, the rosettes in the corners, beside the beauty of the whole, are worth careful analysis. Many ornamental motives will be found in this plate, and in the designs below, from Owen Jones' *Grammar of Ornament*. See also page 53.



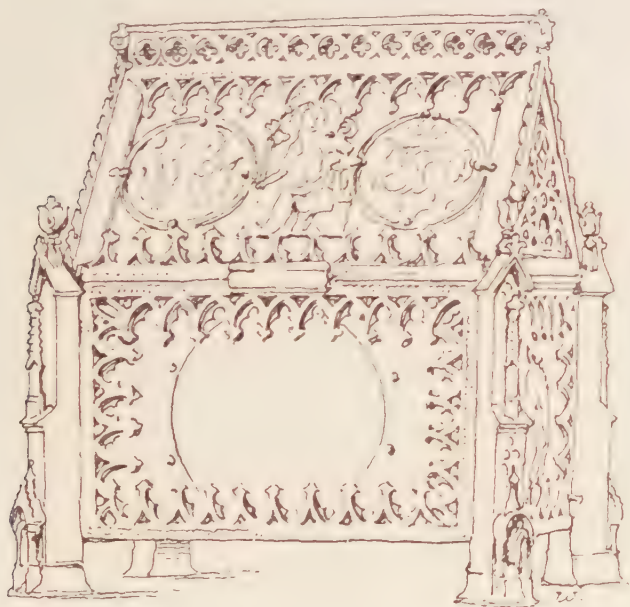


A ROMANESQUE COFFER (CLUNY MUSEUM), AND A
GOTHIC CHEST (JOHN HERRON ART INSTITUTE), EACH
A TYPICAL AND BEAUTIFUL EXAMPLE OF ITS KIND.

In Plate 130 we have two examples of beautiful boxes. The upper is a small casket of carved ivory in the Romanesque style, dating about 1100 A. D. It is in the Cluny Museum in Paris. It is typical of the style and period, with its round arches and quaint appropriate figures of saints in the niches. Such caskets contained sacred relics of the saints and were called reliquaries.

The lower object is a large chest of the French Gothic style, about 1500 A. D., in the Herron Art Museum, Indianapolis, Ind. The front alone is carved, but gives in its paneling excellent geometric designs in the Gothic spirit. This plate should help us to appreciate good types of decoration of these forms in the past. The structure of each box is here emphasized and an object of utility changed to one of beauty as well.

The pen drawing below shows a reliquary of the Gothic period in precious metal. Its form echoes the architecture of the time both in mass and details. This habit of reproducing in furniture and smaller articles many of the features of buildings appears in almost every period of ornamental history.





AN ACCEPTABLE RENDERING IN WATER COLOR OF A MANTEL
AND FURNISHINGS OF THE GEORGIAN PERIOD.

Every room should be dignified, simple and restful. Perhaps the most important means to this end is a sense of space. This must, of course, be consistent with use and not suggestive of barrenness. Most rooms are badly over-crowded.

Structural lines of a room must be considered. The vertical and horizontal lend dignity. Other directions suggest motion and unrest, and should be avoided. Furnishings should repeat structural lines. Slanting pictures, oblique picture cords, zigzag arrangements of rugs, couches, pianos, or other large articles, looped-up curtains, draperies and scarfs are all common violations of this law of structural lines.

A room must embody an idea and have a dominant interest. The living and dining rooms, the music room and the library, the bed room, kitchen or porch fail in their furnishings if we lose the sense of fitness of the contents or if the articles present are not both useful and beautiful.

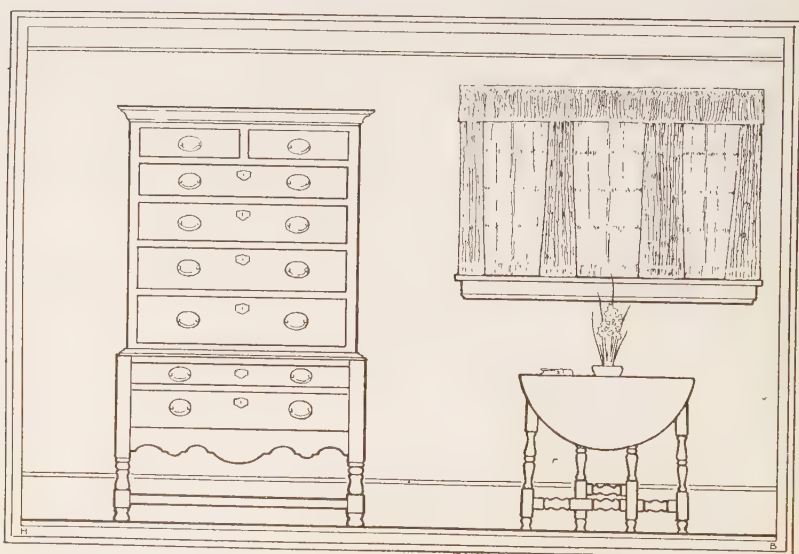
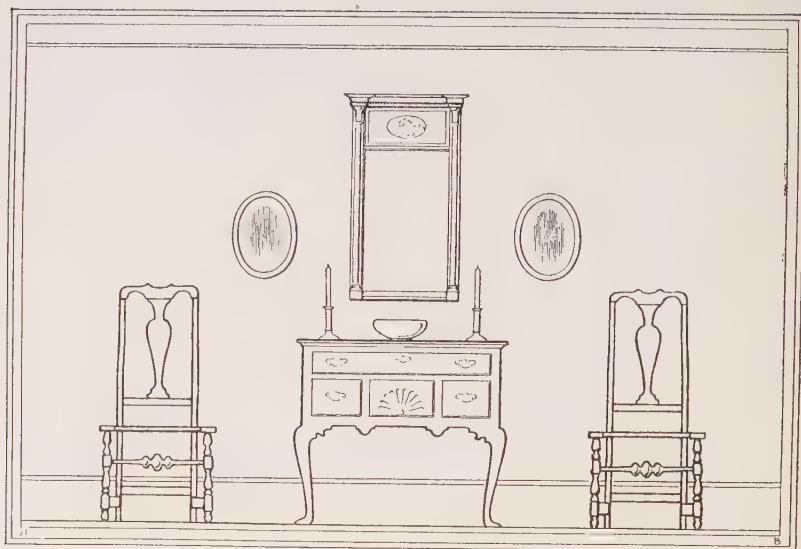
Some one feature in the room's equipment should dominate. This may be the fireplace and mantel, the book cases, a window group, or other arrangement. The featuring of one part of the room means subordinating the other parts. Again each subordinate part of the room should have its center of interest to which, in turn, its surroundings are secondary. Each part of a room, each group of furnishings, should clearly bespeak its special use and show so far as possible a thoughtful, pleasing, inviting arrangement.

In these arrangements symmetrical balance is usually most satisfactory, although the placing of objects so that the balance is felt to be good, while not actually bi-symmetrical, is often necessary. This is called "occult balance."

Color treatment of rooms is also controlled by the law of dominance. One tone must prevail with subordinated harmonies. A room must be regarded as a background to the people within it—never as the chief thing. Soft, neutral colors are most desirable for large surfaces. Bright colors must be limited to small areas. The more brilliant the color the smaller should be its quantity.

Warm colors, the reds, oranges and yellows, are for rooms without sunshine. Blues, greens and purples are cool in effect and are best in sunny rooms.

Wall treatment should be as plain as possible. Pattern, if present, must be most conventional, retiring and flat. Again remember that the wall, properly, is but a background. If pattern is desired for its own beauty then it must stand for itself alone and



ELEVATIONS OF TWO WALLS, SHOWING
 FORMAL OR BISYMMETRIC BALANCE
 AND INFORMAL OR OCCULT BALANCE.

other features in the room frankly subordinated thereto. Pictures cannot be enjoyed on conspicuously patterned walls.

Plain hangings are always good, and usually the safest. Figured draperies of real beauty, may, however, look well with a plain wall. A wall with distinct pattern must have plain draperies. Lace window curtains, white, large figured and starched, are bad. Thin fabrics of soft tone and texture with little or no pattern, are most desirable. Hang curtains and other draperies in plain vertical folds. Avoid looped-up and drawn-back effects.

Dull rather than shiny woodwork is preferable throughout.

Have few but good pictures in simple frames. Gilt frames should be plain and dull.

A picture wire should pass through two screw-eyes at the top back corners of a frame, and be attached to two picture hooks. The picture will then hang with vertical wires without a forward pitch.

Hang pictures near the eye level. Keep to one type of picture and frame in a room. Don't crowd. Have abundant background.

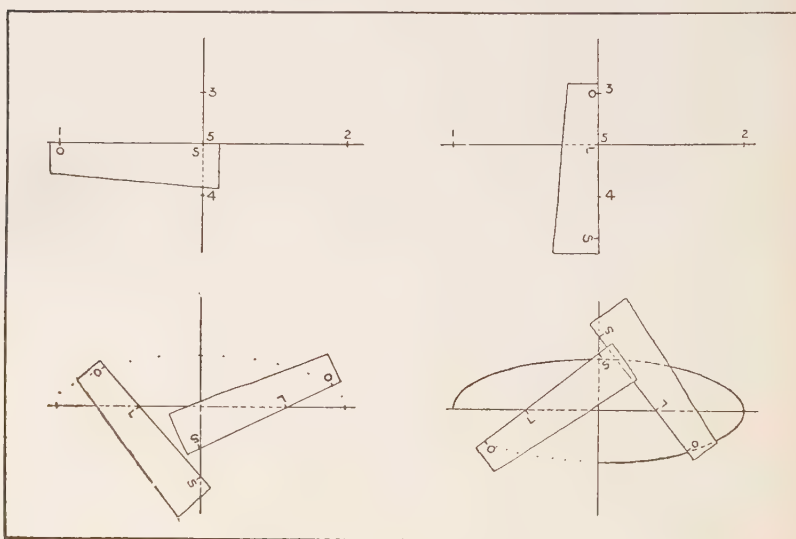
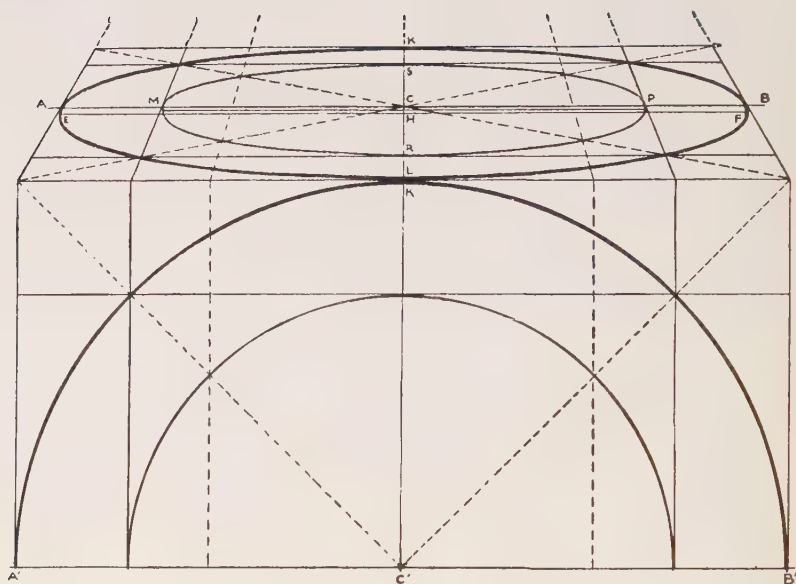
In furniture we are fortunate today in our ability to choose at reasonable cost excellent reproductions or modifications of the models of the best periods. Avoid freaks and oddities. Beautiful old furniture is most desirable, but the sentimental use and display of unattractive heirlooms is foolish. Because an honored ancestor showed exceeding bad taste in a household article or from necessity was forced to use it, one need not now advertise it through a mis-conceived sense of reverence.

Furniture should be arranged so far as possible parallel to the room's edges, and grouped for comfort, hospitality and beauty.

Bric-a-brac must be reduced near to zero. Four or five articles of genuine beauty and real quality are enough in any room. Fancy curio cabinets happily are less common than formerly though mantel pieces still labor under a heavy burden of useless trifles.

The student of interior decoration must learn as soon as possible the essentials of the different decorative historical periods. To this end, he must have abundant reference material. This at best should be through frequent contact with an adequate art library, good art museum collections, decorators' shops and stores, and as large a personal collection of fabrics, materials, books, magazines and pictures as possible. With the abundance and cheapness of the last two almost every student can start a file of most valuable matter for himself.

Elementary exercises in decoration should be drawn in elevation, as shown in the accompanying plates, rather than in perspective.



DEMONSTRATION OF THE PERSPECTIVE OF THE CIRCLE.
THE "TRAMMEL" METHOD OF DRAWING AN ELLIPSE

PERSPECTIVE PRINCIPLES, APPLICATIONS AND RENDERINGS

The upper half of the adjoining plate shows two concentric ellipses surrounded by two squares in perspective. This drawing is accurately made from a photograph of two concentric circles inscribed in two squares. Just below is half of this same diagram in full face view. Compare corresponding points in each view.

It will be noticed that the center of the circle, C' , at the bottom, and C in the perspective, is nearer the back edge of the ellipse than the front.

AB is the long diameter of the circle in perspective. It is most important to note that this diameter, AB , of the perspective circle is not the diameter of the ellipse, which is EF . Point C which is the perspective center of the circle is not the center of the ellipse which is at point H on the line EF .

Briefly expressed the diameter of the circle is not the same line as the diameter of the ellipse representing the circle, but appears a little further back. The center of the circle also is behind and apparently above the center of the ellipse.

When concentric circles are seen obliquely the spaces between the ellipses appear larger at the sides than elsewhere. The front space also shows slightly larger than the back.

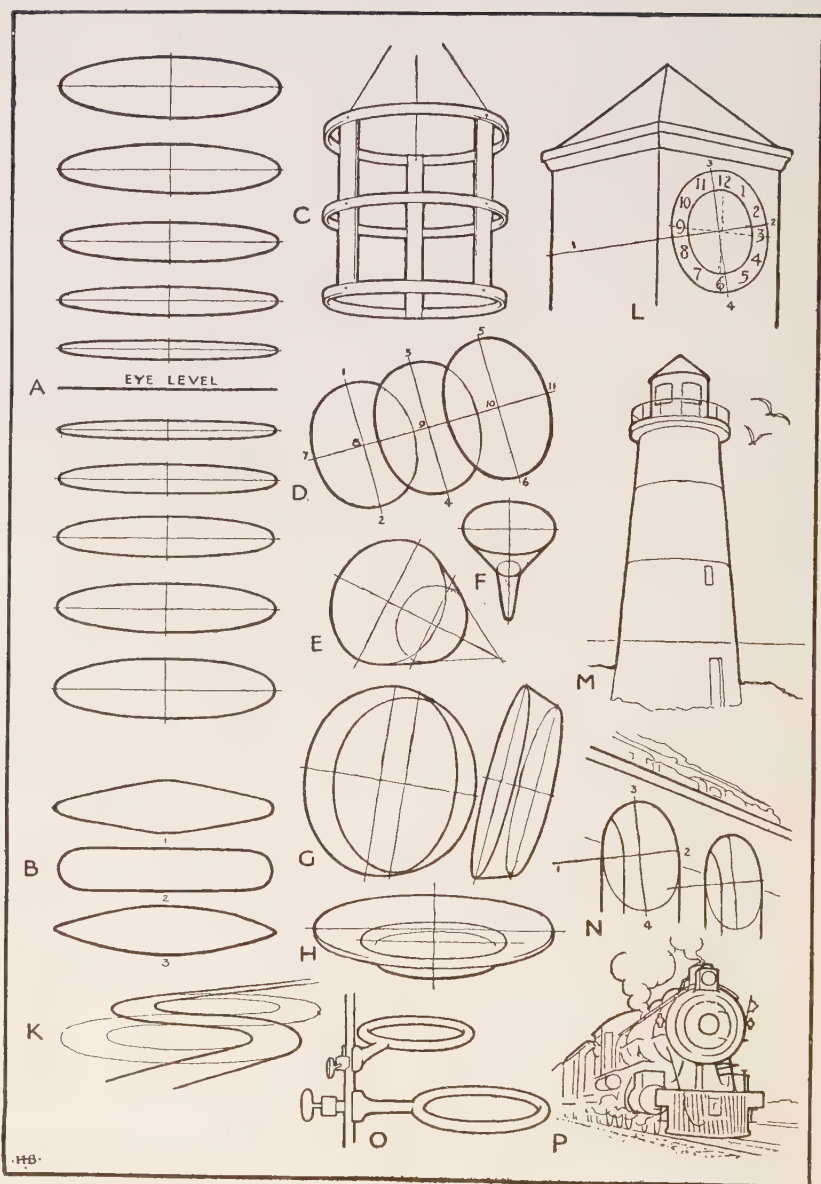
In the lower half of the plate is shown a method of constructing an ellipse with a slip of paper or card. The process is as follows:

Draw the long and short diameters marking them 1, 2, 3, 4. They should extend somewhat beyond their real lengths for convenience. Their crossing is marked 5.

Provide a straight piece of cardboard a little longer than half the long diameter. Lay the straight edge against long diameter at the left. Mark this O at point 1. This will stand for outline. Mark point 5, S , which will stand for short diameter.

In the second diagram note that our card has been turned sideways, lying along the short diameter. Point O touches point 3. Point S is on the short diameter below 4. Point 5 is marked on our card as L , which will stand for long diameter.

Our card, now properly marked, is used thus: It should be moved to as many different positions as points are desired in the outline. Point L must always touch the long diameter; point S



THE ELLIPSE AND SOME OF
ITS APPLICATIONS.

must touch the short diameter; point O will then always indicate a point in the outline of the ellipse. A careful examination of the two remaining diagrams should make this clear. With a sufficient number of points, the ellipse may be drawn free hand.

A satisfactory understanding of the ellipse and its applications and an ability to represent it is a necessity to every one who desires proficiency in drawing. Plate 138 shows many applications of the circle seen obliquely.

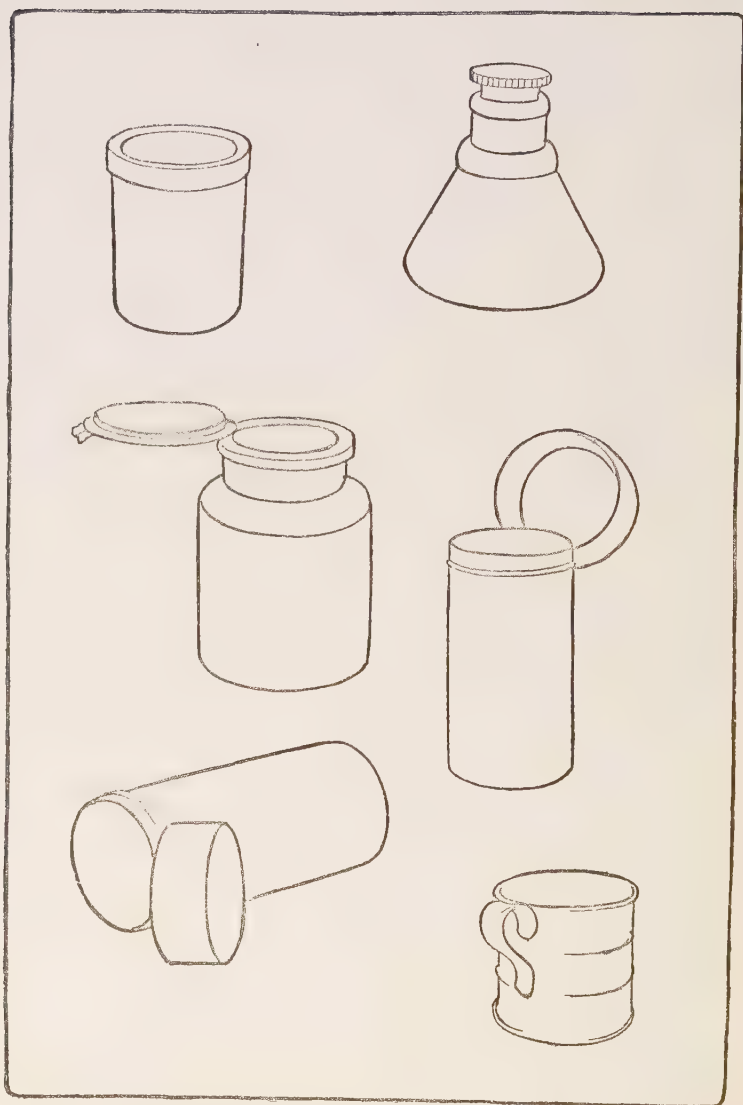
A. We have here eleven horizontal circles at different levels. The central one is assumed to be at the eye level. A circle at the eye level appears a straight line. It will be observed that the higher or lower they are from the level of the eye the rounder they appear.

B. As has been stated in the previous problem, Plate 136, an ellipse is a regular curved figure without sharp points or flat portions, whose four quarters are similar. The three drawings shown here are typical of frequent errors in ellipse drawings. A careful comparison of any of these errors with a correct ellipse should suffice as a lesson in the form of this necessary figure.

C. This figure shows three wooden hoops held in place by side strips, the whole suspended above the eye. We have an excellent model here for a study of the principles shown in A. This object may equally well be placed below the eye. A large number of common objects are based on this construction.

D. If the hoops (C) are placed in an oblique position we have a new principle to deal with. The circles are not only higher or lower as before but also nearer to or farther from the eye. An object always appears smaller as it becomes more distant. Thus in an object with two or more parallel circles, placed in an oblique receding position we find the ellipses appearing not only rounder as they recede, but a little smaller in size, also. While this fact is very evident only in large objects it is a most important point to remember and observe. In the three ellipses here shown, 5, 6, is the nearest and 1, 2, the farthest from the observer. 1, 2, is therefore the smaller and also the rounder.

E, F, G. In drawing circular objects always draw the complete ellipse whether seen entirely or not. In this way only can you avoid serious errors of curvature and position. The long and short diameters should also be drawn. In every regular cylinder and cone or objects based upon them in form, the long axis of the ellipse is always at right angles with the axis of the



COMMON OBJECTS EMBODYING THE ELLIPSE
IN SEVERAL POSITIONS.

object. In D, we find the diameters 1, 2; 3, 4; 5, 6; at right angles to 7, 11. In E, F, G, the same is true. The amount of tip a cylinder or cone may have does not affect this rule. The axis of the ellipse remains at right angles with the axis of the solid. Ignorance of this has led to some amusing errors in drawing. In E and G and you will notice that the rear ellipse cuts through the front ellipse. In the studies of pots and pans in still-life we frequently find this condition. The bottom of a pan may show on the inside. It is practically a continuation of the ellipse of the base, which appears on the outside.

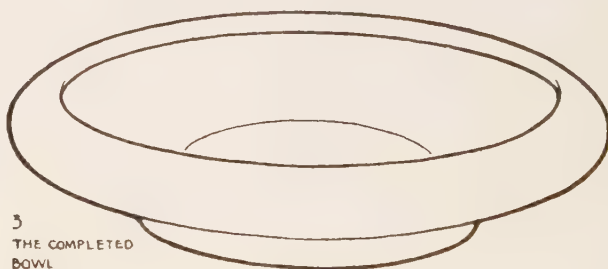
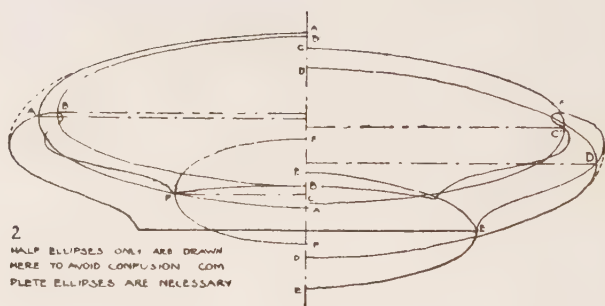
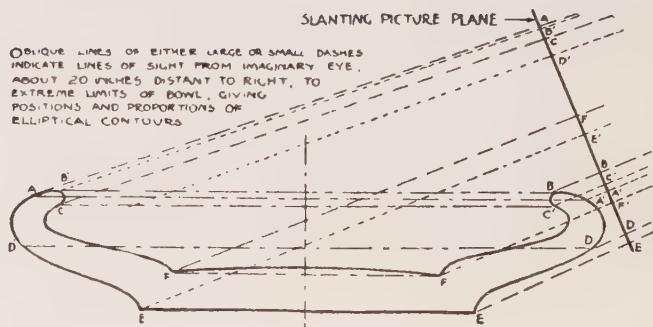
K. This diagram shows the application of the principles of ellipses to the drawing of a road bending in a circular curve. Here, as in all other cases, the position of the eye compared to the ellipse controls the degree of curvature. Here it is assumed the road makes a double bend which combines two overlapping ellipses.

O. Drawings of apparatus constantly present problems of the ellipse. The two rings of a chemical retort-stand show a frequently misunderstood fact. It will be observed that these rings are horizontal. The ellipses will, therefore, be horizontal. The direction of the bar extending from the vertical support to a ring has no effect whatever upon the direction of the ring, although one is tempted to extend this bar as a long diameter of the ellipse.

L. N. In these drawings we note a fact not often observed though constantly in evidence. A circle or part of a circle considerably above or below the eye, lying in a vertical plane retreating from the spectator, appears not a vertical ellipse but one with its long axis more or less tipped from the vertical. This possibly puzzling fact may be explained by regarding the ellipse as the front face of a cylinder. The long axis of this cylinder would, of course, slant obliquely toward the eye level or horizon. As the long diameter of the ellipse is always perpendicular to the axis of the cylinder it will slant somewhat to the right or left. In our clock-face, L, and bridge arches, N, this principle is clearly shown. In L the figures 12 and 6 on the clock-face remain in a vertical line, of course, although the axis of the ellipse is perpendicular to the line 1, 2.

M. The lines around a tower at various levels are governed by the rules shown in A.

The locomotive and other types of machines present many interesting though difficult problems of circles in many positions. Make as many careful studies as possible of such objects.



A METHOD OF CALCULATING AND DRAWING THE FORM OF A BOWL OR OTHER CIRCULAR OBJECT FROM ITS SIDE ELEVATION.

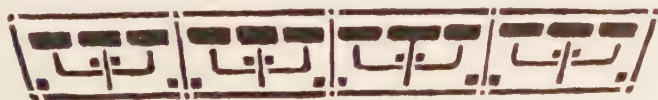
In the accompanying plate of three drawings the upper represents the section of a bowl from which the desired perspective is to be made. The eye of the spectator may be imagined about twenty inches distant, upward to the right. The various lines of sight from the extremes of the contours of the bowl or its distinct angles are represented as converging obliquely upward toward this imagined point of sight. These would cut through an imaginary picture plane placed perpendicular to the central ray, their points of cutting shown by numbers along this picture plane, which in this diagram is seen edgewise as a line. The front and back edge of each ellipse in this diagram bears the same letter either with or without a prime, as for example, A, A'; B, B'.

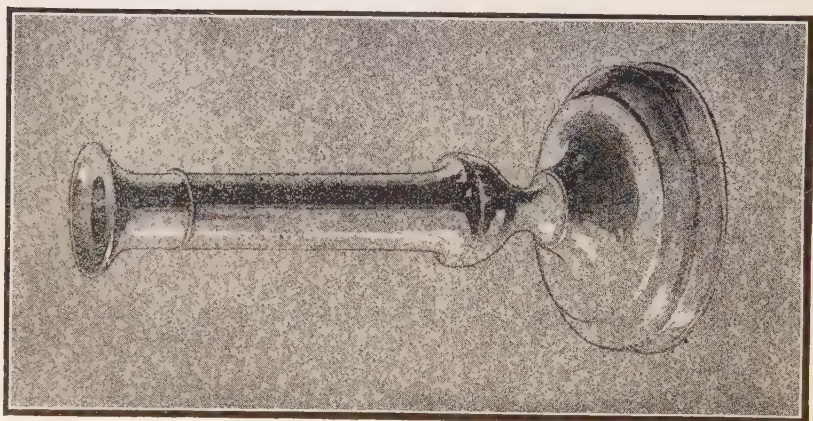
If we followed logically the scheme thus far suggested we should next require a top view of the bowl with the converging sight rays cutting the top view of the picture plane, with carefully related and numbered points; but though the logical and accurate method, we may for simplicity discard this step and apply, with small degree of error, our points along the picture plane of Figure 1 to the vertical center line of Figure 2. Points A, A', for example, should be balanced above and below the horizontal axis of the ellipse they represented in Figure 1, being kept the same distance apart as in the first figure. Points B, B', and all other pairs should be similarly treated.

The next step is to draw with care and accuracy each ellipse, as indicated in the second figure, halves of which are here left out, however, for clearness.

In the last stage, the drawing with its rather confusing number of ellipses is carefully gone over with an eraser. The invisible parts are rubbed out, visible edges emphasized in some parts or in others faded off into the surface portions of the bowl.

Edges which form rounded surfaces without sharp contours are at first puzzling. The eye sees one portion of an ellipse in front and a portion of quite a different ellipse at the back. These two different elliptical contours merge together, however, most fascinatingly in their progress around the bowl if one cares to examine the facts.





FREEHAND RENDERINGS IN PEN AND INK, WASH, AND PENCIL, FROM WORKING DRAWINGS OF CANDLESTICKS. SEE PLATE 120.

The exercises here suggested are methods of rendering in perspective from working drawings. The subjects presented are those of Plate 120, the turned candlesticks.

In making a perspective drawing from the elevation, or side view, of the candlestick, all horizontal lines representing circles in side view should be drawn as ellipses. These ellipses should be made with greatest care, with a special regard for the degree of fulness or flatness of each; such fulness or flatness being dependent upon its level compared to that of the eye.

An ordinary position for a candlestick would be below the eye. The flattest ellipse would, therefore, be that nearest the eye-level, or at the top of the candlestick, the circles appearing more and more as they become lower.

An ellipse is always a difficult form for pupils to draw well, and many such forms, of various sizes and degrees of roundness, all of which must be thoughtfully related in a single drawing, go to make up a problem demanding serious and patient application.

After a careful outline drawing has been made the light and shade may be treated as shown in the accompanying plate.

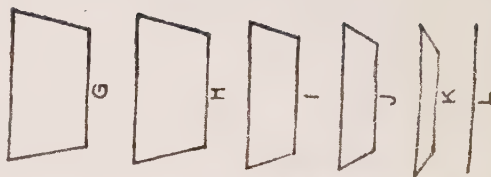
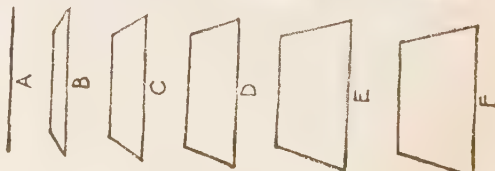
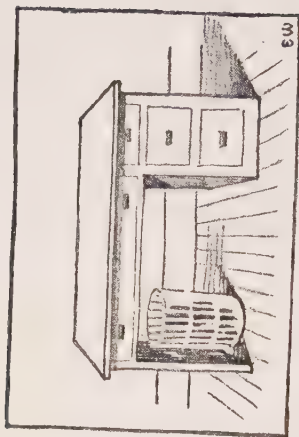
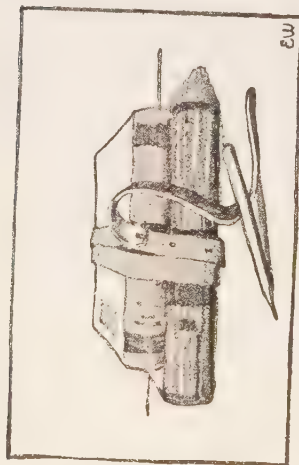
Such rendering may be in wash, pencil or pen-and-ink. Other methods of rendering could have been shown, such as wash on white paper, pen-and-ink on gray paper, touched with white, combinations of wash and pen-and-ink or pencil, etc. In the use of gray paper caution must be exercised as to the quantity of white used. A very little Chinese white or white chalk is sufficient. It is very easy to get too much, which gives a false and cheap impression to the whole picture.

The light in these renderings is supposed to come from the upper left hand, but the object being, supposedly, shiny allows of much freedom in the shading and accents of dark and light.

Instruction in such rendering should be accompanied by references to actual polished objects of generally similar shapes, and to good photographs of the same. Drawings or reproductions of renderings by able designers ought also to be studied.

Much help may also be gained from the chapter on Pencil Technique, page 167, and from many examples of outline and light and shade drawing elsewhere in the book.

Reference to files of the *International Studio* and other art magazines will bring to light many renderings of metal cylindrical objects, variously treated.



ILLUSTRATIONS AND APPLICATIONS OF THE PRINCIPLES OF PARALLEL PERSPECTIVE.

When one looks directly down a long straight street or a railroad and sees the various parallel horizontal lines apparently retreating from each side toward a single point on the horizon, the effect is known as parallel perspective. The view is supposed to include no more than can be seen without moving the eye. If more is included at the right and left of the vanishing point than could be so seen the picture becomes distorted in appearance. Drawings of single objects or groups of objects, of rooms, corridors, streets, etc., in which important axes of the objects are parallel with the direction of sight are in parallel perspective.

All horizontal lines at right angles to those vanishing at the single point on the horizon will appear horizontal in the picture. All vertical lines appear vertical. In Plate 146 the figures A to L illustrate the appearances of a rectangle seen at different levels both below and above the eye, whose level is indicated by A. and L.

The picture of the railroad track or street might be taken as the first of a large number of interesting experiments in parallel perspective.

The underlying principle of spacing in these drawings may be the ratio of two parts to three. Any space whatever that needs subdivision shall be thus treated and not cut at random.

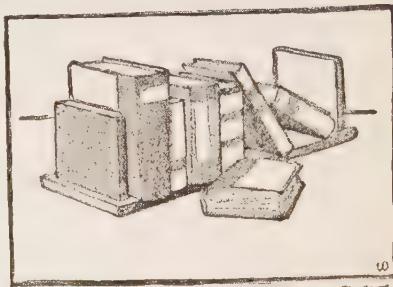
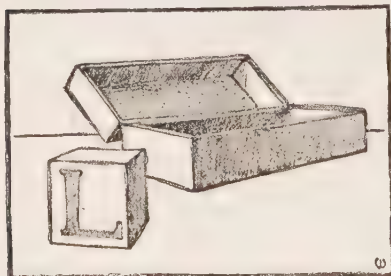
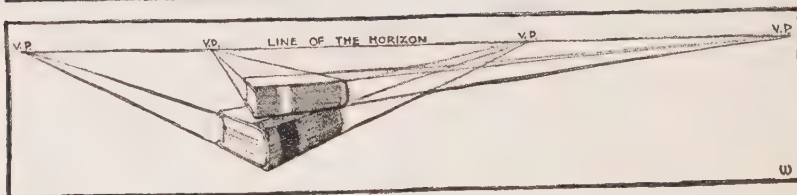
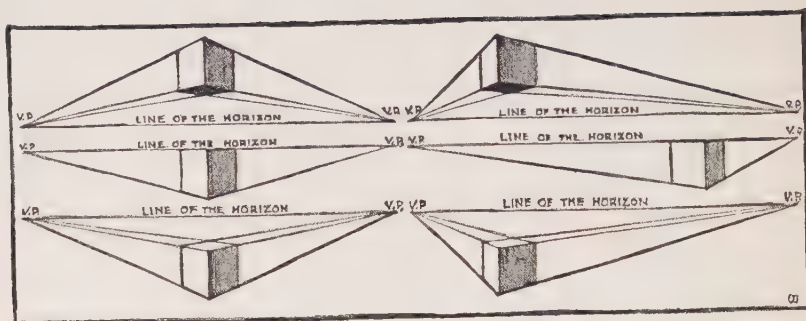
Locate the horizon by dividing the area inside the frame into five parts, of which two parts are land, and three sky, or vice versa. If a very high or low horizon is desired, re-divide the upper or lower two-fifths, according to the same principle. Situate in the same way the front end of each side of the road.

A consistent adherence to this method of spacing will allow of many arrangements and consistent variety in each drawing.

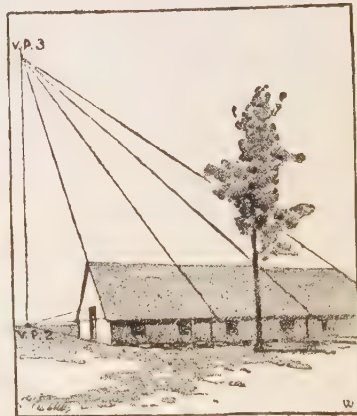
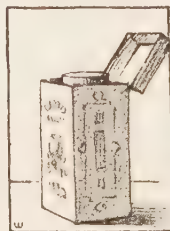
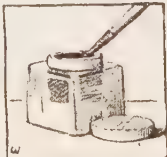
The telegraph poles are best located at the side showing the greater space, their bases and tops limited by guide lines converging at the vanishing point.

In spacing a row of retreating objects such as these poles, random guesswork should be replaced by logical system. Equal distances, retreating in perspective, diminish at a constant ratio. Suppose the position of the second pole seems to be half way between the first pole and the vanishing point, then the third pole will be similarly half way from the second pole to the vanishing point. Each succeeding pole will also be one-half the distance from the previous pole to the vanishing point. Other ratios work as well.

The finish of this sketch admits of a wide range of treatment in a variety of materials.



Conrad Martin



ILLUSTRATIONS AND APPLICATIONS OF THE PRINCIPLES OF ANGULAR PERSPECTIVE.

A careful study of the principles stated below and of Plate 146 and 148 will do much toward making clear the mysteries of perspective. A most important point to consider is the fact that any single view that one may have cannot cover more than about one quarter the distance between the vanishing points. This may be a little smaller than is actually the case but it is a safe limit. Both vanishing points of the same object can never be in a picture. Where such are shown on the opposite page it is for explanatory purposes only. The actual picture area in each case should be about one quarter the distance between the vanishing points of any one object.

1. The horizon line is an imaginary line directly opposite the level of the eye.

There can never be more than one horizon line in a picture.

2. All receding horizontal parallel lines will meet at the same point on the horizon line if sufficiently extended. This point is called the **Vanishing Point**.

3. Faces of rectangular objects when viewed obliquely appear foreshortened, and the greater the angle at which the object is turned, the greater the foreshortening.

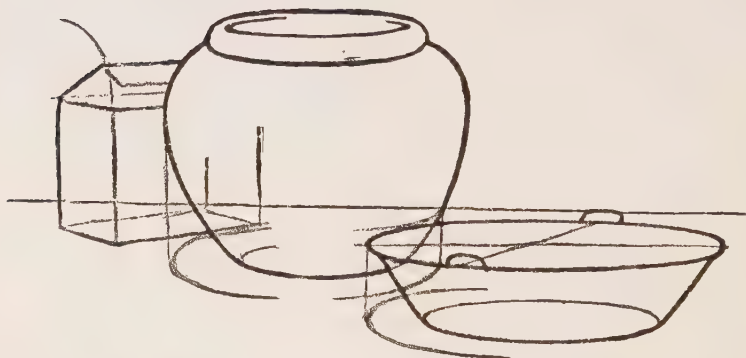
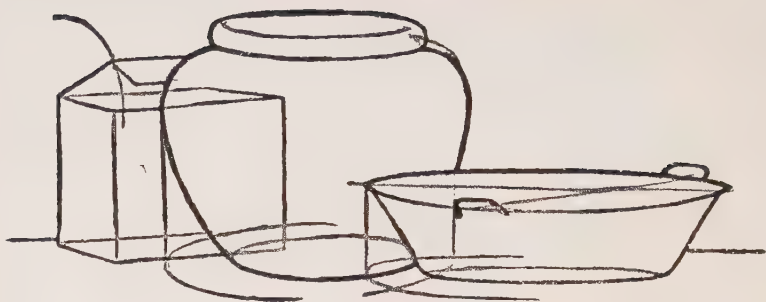
4. Parallel horizontal edges receding to the left appear to converge to a **Vanishing Point** on the horizon line at the left of the object; those receding to the right to a **Vanishing Point** at the right of the object. If the parallel edges instead of being horizontal slant upwards or downwards, the **Vanishing Point** appears above or below the horizon line.

5. In groups containing objects turned at different angles, each object has its own set of **Vanishing Points**.

6. When faces of a rectangular object are turned away equally, the **Vanishing Points** are equally distant from the point opposite the observer.

7. When faces of a rectangular object are turned away unequally, the **Vanishing Points** are unequally distant from the point opposite the observer. The greater the angle, the nearer the **Vanishing Point** is to the point opposite the observer.

8. We have learned that rectangular objects may be so placed directly in front of the eye that there will be only one **Vanishing Point**; they may be turned so there will be two **Vanishing Points**; or they may be turned and inclined so there will be three **Vanishing Points**.



ERRORS AND CORRECTIONS OF A GROUP OF OBJECTS IN PENCIL. STUDIES OF SPOUTS, HANDLES AND LIDS.

The upper two drawings at the top of Plate 150 illustrates a number of common errors. These errors are shown corrected in the drawing below.

A frequent mistake in drawing is made in the apparent placing of two or more objects so that their masses would conflict, if actually as shown. It will be noticed that the pasteboard box and the pan so encroach on the jar that they would in actuality collide. This is not noticed by the careless student until the facts are made clear by extension lines or by other means. The interlocking of the ellipses of pan and jar and the conflict of the extended invisible portion of the box and jar should make this principle clear.

The side edge of the boxcover is too long. When shut down it would overlap as shown by the arc of the circle.

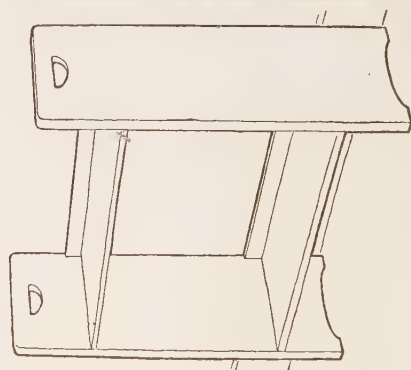
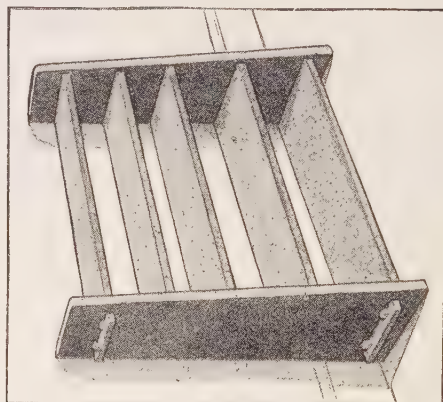
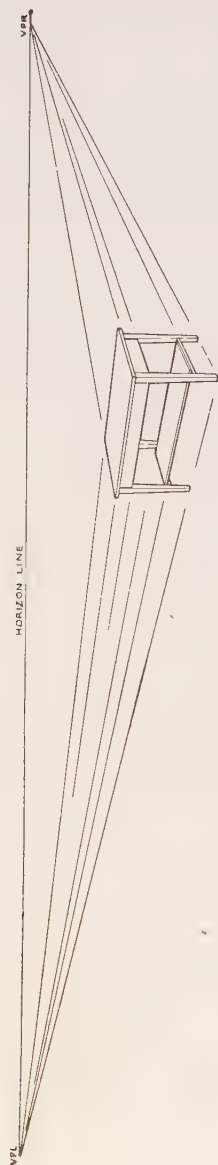
The shoulder of the jar, it will be noticed, meets the neck with a sharp right angle. The usual effect would require the contour of the shoulder to lead around to the back to join gradually with the ellipse of the neck. The faint line shows this as does the correct shoulder of the lower drawing.

In the pan the handles are not placed opposite to each other. The center of the top circle of the pan is a trifle behind the center of the long axis of the ellipse. Any two points opposite each other on the rim of the pan must be at the ends of a diameter drawn through this center point. The handles should therefore be shown as in the lower pan.

In the drawing of handles, spouts, noses, lips, rims and feet of objects we are confronted by many difficulties. It is unsatisfactory to show all of the outline in any case. A judicious choice of parts of the form to be accented and other parts to be ignored is the only successful method. An examination of the lower set of drawings here will help. Treatment of edges of circular objects will also be found in Plates 136, 138, 140, 142, and 144.

The relative positions of handles and spouts are usually decided by the same method as that explained for the two handles of the pan in the upper problem of this plate. Customarily they both lie in a diameter passing through opposite points of the ellipse of the rim.

Most students, either from ignorance or carelessness, fail to draw faintly the invisible portions of objects, upon the correct form and position of which much else depends. This we see in the upper drawing. Spouts, handles, lids, feet, need especially such thought and care.



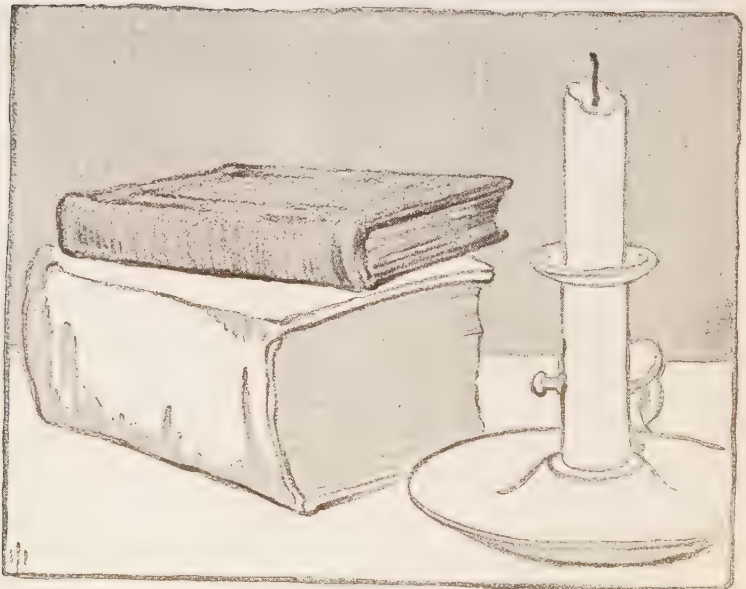
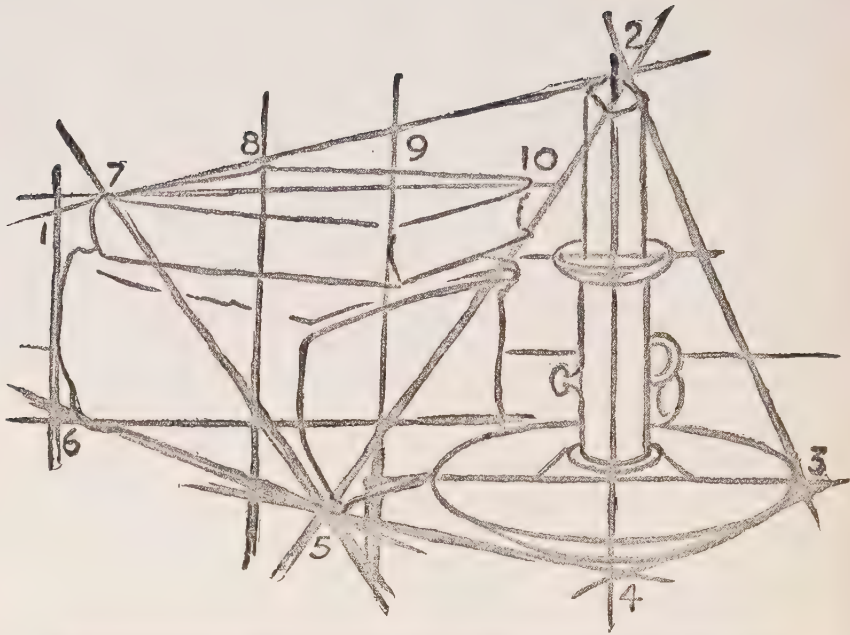
PERSPECTIVE RENDERING OF FURNITURE
FROM WORKING DRAWINGS.

While the value of freehand sketching is here distinctly recognized and its practice urged, another phase or method of perspective rendering may also be tried for more complicated articles with good results.

Those who have worked in architects' or decorators' offices or seen others at work are no doubt familiar with the method of fixing the vanishing points at either end of the horizon line, as laid out on a large board, by means of two tacks or pins firmly driven into the board at the proper places. A long T square or straight edge having the farther end of its ruling edge resting against one of these pins can be moved into any position necessary to draw a required vanishing line. It has to be shifted, of course, to the right or left side of the board to accommodate the direction of the vanishing lines. Vertical lines of any object must remain vertical in perspective. Oblique and curved lines in perspective may be rendered by enclosing them in rectangles. By giving these rectangles their proper form and position in the perspective drawing the irregular lines or forms may be very closely plotted. See bottom of Page 12.

It should be made very clear to a class attempting the use of horizon line and vanishing points that the size of a drawing in comparison with the space between the vanishing points cannot and must not be more than one quarter. A larger size than this is apt to cause unpleasant distortions.

It is not the purpose here to describe or advise all the means employed by architectural draughtsmen for elaborate perspectives. Elaborate methods of measurements, for example, are not advisable where simpler means and approximate results will serve as well. The following, for example, will be found a helpful method in determining the amount of foreshortening of the side of an object in perspective. An ordinary footrule may be held by the pupil in a horizontal position, but retreating at the same angle as the side of the object to be drawn. The apparent perspective length of the ruler in this position may be tested by pencil measurement and a comparison made with the ruler when seen full length. The proportion of diminution thus observed may be applied to all lines retreating at a similar angle in the perspective drawing with very satisfactory results. Vertical proportions are not subject to the distortions of retreating horizontal distances. Although a distant vertical line appears shorter than a near one, its parts retain their correct relative proportions.



METHODS OF LAYING OUT AND COMPLETING A
SIMPLE STILL LIFE GROUP.

Mention has elsewhere been made of the Cross Transparent Drawing Slate. Excellent results come from the use of this article and a thorough trial is advised. See page 10.

In drawing from any object or group the pupil should start with a thoughtful survey of the whole as to relative width and height including the desired background and foreground.

The position of the paper is to be decided and the size of the drawing upon the sheet. These first steps in starting the drawing are so constantly ignored and violated that too great emphasis can hardly be given to them.

The proportion of the whole group is to be indicated lightly and massed in by block forms, using straight lines as boundaries, connecting all exterior corners. The student should imagine the object or group inclosed in a shell or wrapping, which ignores minor depressions but gives all the plain features and positions for comparison.

Unaided visual judgment should always precede mechanical tests. All the usual tests with pencil thread, adjustable card angles and frame openings should be used as necessary. In applying tests they preferably should occur in the following order, during the progress of the drawing:

Whole height compared to whole width.

Comparison of horizontal levels of important points.

Comparison of horizontal distances of important points.

Comparison of vertical relations of important points.

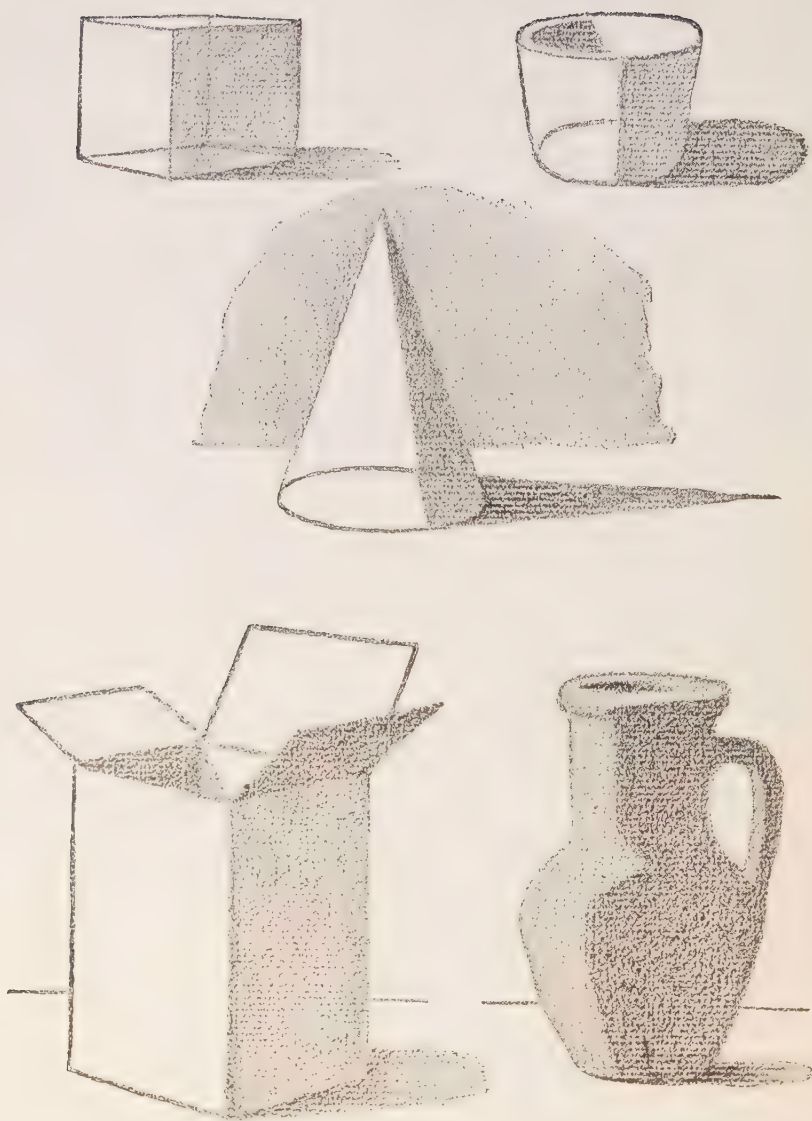
Comparison of vertical distances of important points.

Comparison of oblique and diagonal relations and distances of important points.

Further development of the drawings will bring out the perspective details of each object or part which, if the preceding work has been well checked, will fall into proper position and relation with the adjoining parts.

These tests, carefully applied, together with the use of two straight-edged cards for comparison of angles in perspective (see Tests in Appearance Drawing), should be sufficient for the making of an accurate drawing.

Numerous examples exist elsewhere in the book of various methods of finishing a drawing. Our lower picture here is a good example of pencil technique suggesting light and shade. Part of the picture has been cut off to improve the composition.



The approach to light and shade drawing cannot be made too clear and simple for most pupils.

Choose simple, unglazed common objects of rectangular and cylindrical types, of white or other uniform tone.

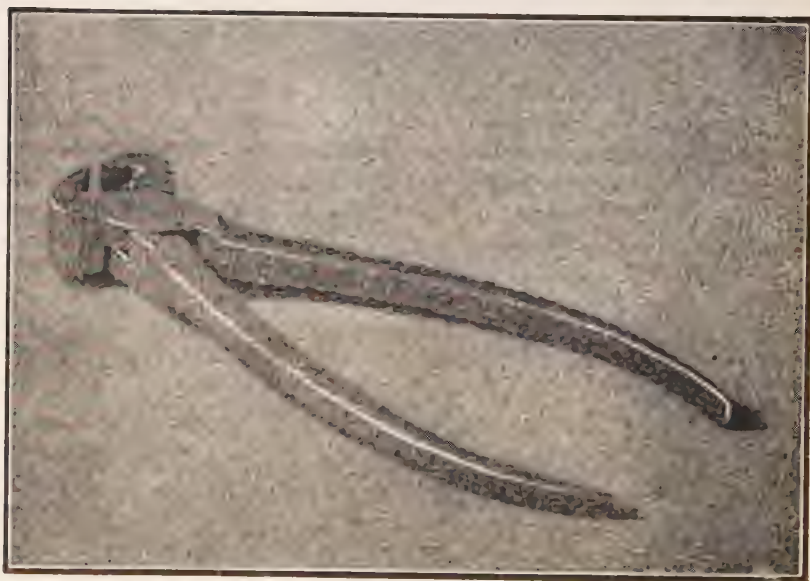
The teacher should make before the class a large drawing of an object or group, similar to that which the class is to draw, using the same materials and methods as is required of them. Do not slight this drawing. A teacher's work should excite emulation and rivalry among the pupils by its excellence.

Put your groups where they can get good lighting. You can't begin study of light and shade with any but a single, direct side light which defines light and shade sides and cast shadow. Rebellious conditions require unusual patience and ingenuity to overcome them.

The use of black crayon, such as Dixon's or any other not too waxy or smudgy, kept to a medium point, is excellent on charcoal paper, without rubbing down. Plate 156, 158. Pupils should make all drawings large. Have all early problems such that they can be finished in one sitting.

It is well to get the first plotting of proportion and form of the object with a medium lead pencil, which easily permits of erasure. When correct erase until very faint and go over lightly with crayon. Study carefully the area and form of the shade side and cast shadow and put them in their correct value with the crayon, without rubbing of stump or finger. In early studies avoid background, foreground or other tones except the shade side and cast shadow. The unshaded parts may be defined by lightly accented outlines. Drawings of this type may be done on tinted paper with the lights touched in with white. Plate 158, bottom.

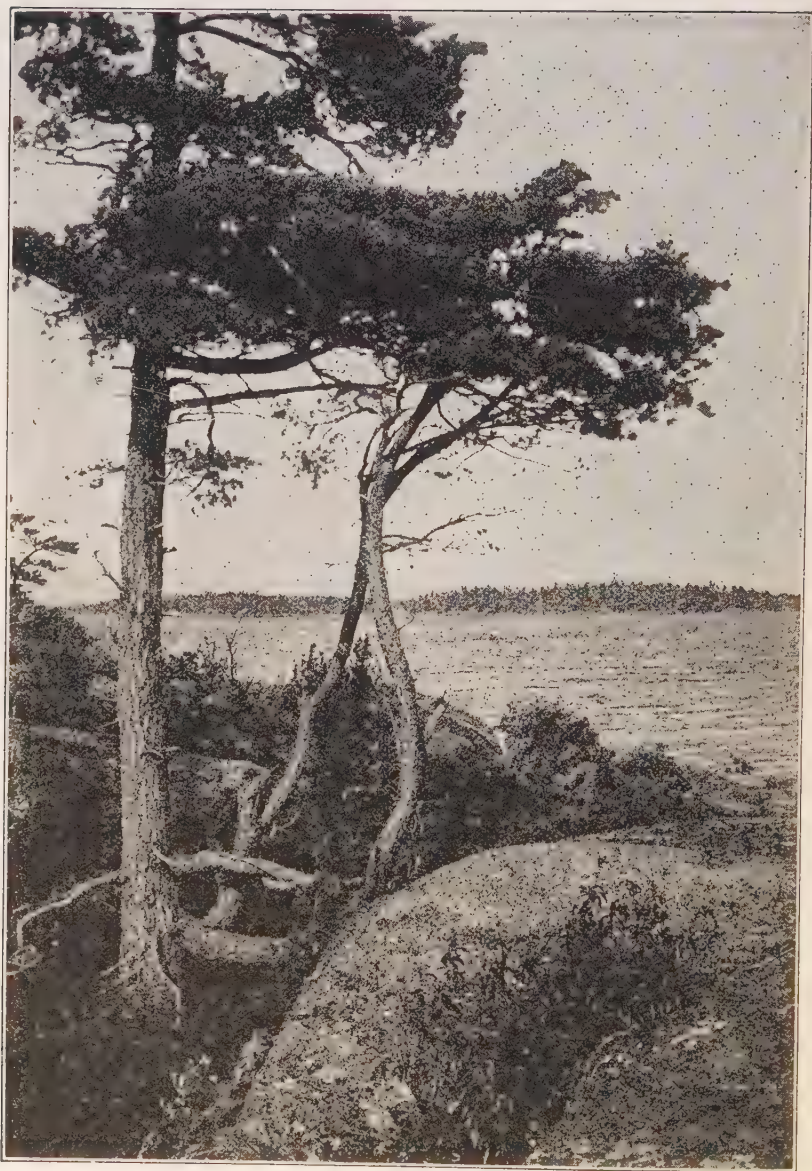
Drawings of a more advanced grade of difficulty should show shading in approximate values of all parts, with background and foreground. Plate 159. These values may be limited to five: white, black, middle, light, and dark. Many students will be assisted by the use of a strip of white paper along whose edge have been applied the values just named. By holding up this paper and comparing with half-closed eyes these values with the parts of the group definite decision as to the necessary tones can be made. Tones should be kept as flat as possible, avoiding all slight variations of modeling. The object of all this study should be the true rendition of facts and not the exhibition of tricky or brilliant technique.



A STILL LIFE IN LIGHT AND SHADE WITH CRAYON POINT.
A DRAWING OF A TOOL ON GRAY PAPER, IN LIGHT AND
SHADE, TOUCHED WITH WHITE.



A STILL LIFE GROUP IN FULL LIGHT AND SHADE VALUES
RENDERED IN CHARCOAL WITHOUT RESTRICTIONS.



PINE TREES AND ROCKS. A PHOTOGRAPH OFFERING
EXCELLENT MATERIAL FOR DECORATIVE USE.

LANDSCAPE COMPOSITION

In the choice of a subject or in the arrangement of material for the composition of a picture most students try to include too much. The eye and the mind become wearied with a variety of attractions rather than charmed by some one dominant feature of interest. The importance given to trifling details is also a stumbling block to the novice. The small markings of rocks, tree trunks, waves and other minor forms without number are an ever present source of trouble.

A solution of these problems would seem to be as follows:

1st. Search carefully with a finder card until you are sure that your composition includes no more than really helps to make an attractive picture.

2d. Simplify all detail as much as possible. Flat tones should take the place of most gradations and blendings of colors.

3d. Try a number of different treatments of the same subject changing in each the scheme dark and light and color. From these choose the best for careful completion.

In the accompanying photograph, Plate 160, we have a typical view of a shore with pine trees attractively formed and grouped. The view has many pleasing features but must be simplified to form a picture.

In plate 162 are a number of compositions all based on this view. Each was selected from Plate 160 by means of the adjustable finder, which was moved over the picture until a pleasing composition suggested itself. The purpose in each has been to concentrate the attention on some especially interesting part as to line, mass and tones, with satisfactory subordinate parts. Some liberties have been taken as will be noted. In each there is a leading feature of interest which dominates the composition. Here again we have the principle of domination which has been elsewhere reiterated. The proportions of one mass to another and the arrangement of the lines in each picture are attempted with a view to as much variety as is consistent with a necessary sense of unity.

Plate 163 suggests a similar problem with buildings and other accessories. Any attractive picture containing houses as well as natural objects may form the basis of many original compositions which, as in our problem above, should be treated in several ways in flat tones.



EIGHT COMPOSITIONS DERIVED
FROM PLATE 160.



TWO INTERPRETATIONS OF THE
SAME LANDSCAPE GROUP.

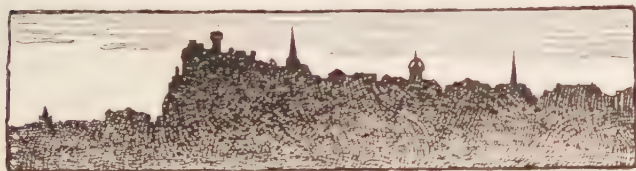


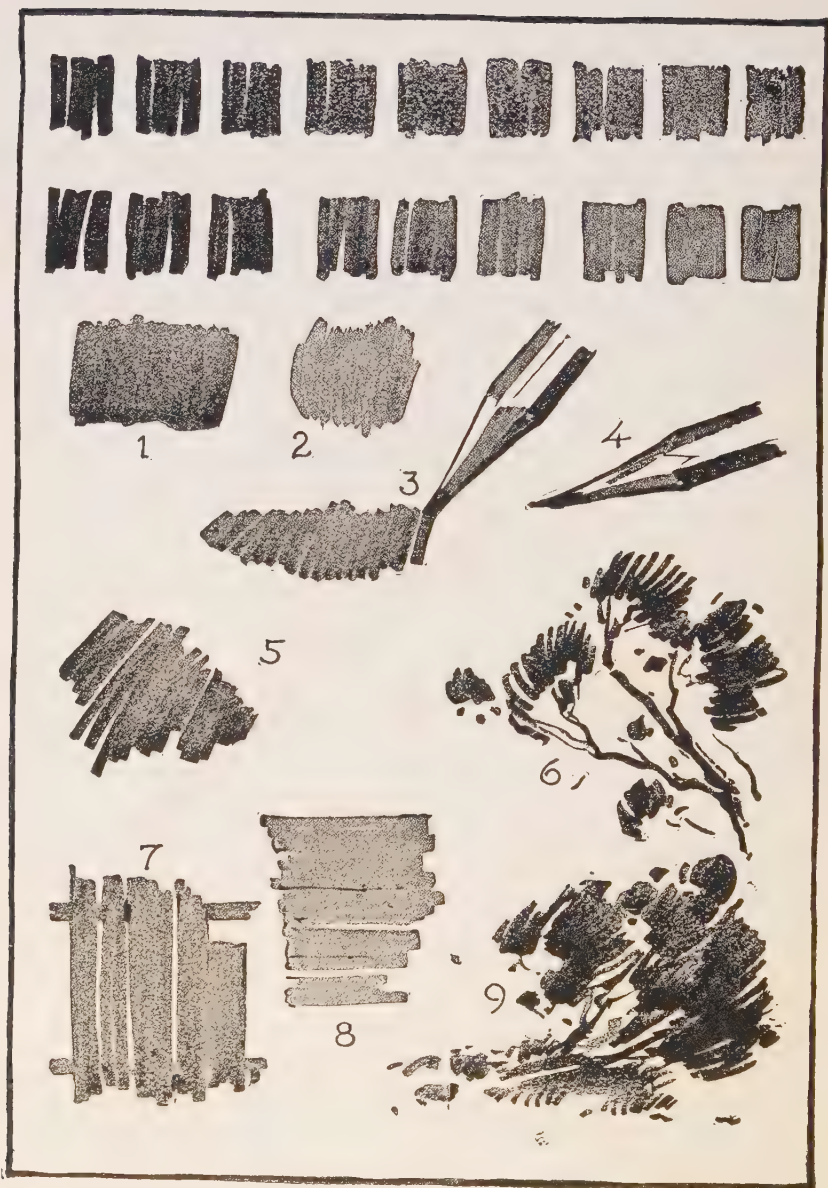
SKYLINES.

This plate suggests several problems with sky-lines or those effects one sees after sunset when the buildings silhouette themselves against the twilight sky. Many an ugly view by day becomes then full of mystery and charm to the artist while the person without taste passes it by. We have here an example of the importance of large simple masses and the elimination of detail. By day we are dull to what beauties there may be owing to the confusion of interests. By twilight a veil has settled which softens all into one general tone and allows the large forms to show clearly against the sky. The color also is harmonious. Frequently it will be noticed that the tone of the objects appears the complementary of the general tone of the sky. As the sky at this hour usually is yellowish, either merging toward orange or green, so forms seen against it appear a gray tinged with blue, purple or red. In the plate, 164, several forms will be found recurring, the church spire, the dome, the gable roof, the chimney, the cupola, and touches of foliage. The sizes of these vary in the different pictures. The problem here may be said to consist in choosing three or four of these characteristic forms and within a chosen oblong, at least 12 inches long, to arrange them in an attractive composition.

It will be noticed that first one must settle upon a dominant form that holds the attention in the picture. Other parts are subordinate, and may be so arranged as to give interesting variety of spacing and direction of line.

This dominant feature should never be placed in the center, nor should other objects be arranged symmetrically or appear of similar heights. The composition presents, if well done, a good example of occult balance. In general the value of sky must be uniformly lighter than that of the buildings, though some slight variety of tone is allowable in each part.





SUGGESTIONS FOR THE HANDLING OF
THE PENCIL IN TONE WORK.

PENCIL TECHNIQUE

ERNEST W. WATSON

A pencil sketch must first of all be interesting. It must sparkle. It must be jolly and refreshing in its crisp, direct handling. This quality in a pencil drawing depends upon contrast. Contrast is to a sketch what seasoning is to food. It gives taste. Without striking contrasts of dark and light tones, the illustrations of this chapter would not be attractive.

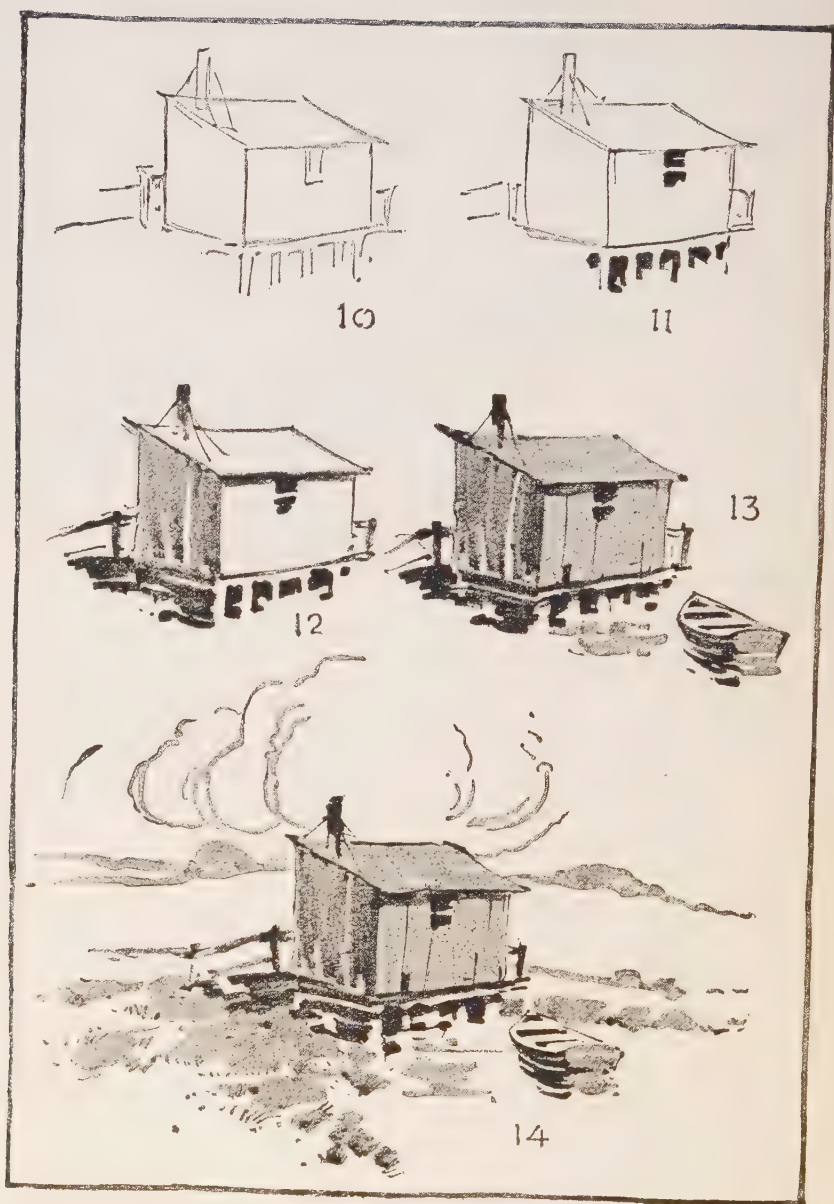
In order to obtain effective contrasts of value, pencils of varying degrees of hardness are desirable. A hard pencil will not make the darkest tones required in the sketch. Any tone may be secured with a very soft pencil as the upper tone scale on page 166 shows. It will be seen, however, that in this scale the lightest tones, all of which were made with the same soft pencil, are unpleasant. They have a mealy or woolly texture such as charcoal or crayon would give. Usually this is an undesirable quality in a pencil drawing. How much more pleasant are the corresponding light tones of the scale underneath! They were made with harder pencils and of course, with greater pressure. Good quality of pencil tone depends upon pressure, which must be great enough to bite into, or smooth out, the surface of the paper. Three pencils, hard, medium, and soft, were used for the various tones of this second scale. They are sufficient for all ordinary work.

Obviously the kind of paper has much to do with the quality of the pencil tones. Paper with too rough a surface will give poor results, for a woolly effect cannot be avoided. Neither is glazed paper suitable. Paper with a slight roughness, or tooth, is best. There should be several sheets of paper between the drawing and the drawing board, to give the elastic surface essential for free, spontaneous work.

For all work in mass, the point should be worked down to a flat surface on a scrap of paper so that the stroke will be as wide as is possible with the pencil in a natural writing position (Fig. 3). The position illustrated at Fig. 4 is not conducive to vigorous work. Moreover the point is liable to break when pressure is applied.

Every stroke should begin and end abruptly as in Fig. 3.

Strokes of this character are seen in Figs. 7 and 8 which give suggestions for rendering vertical and horizontal boarding. The soft, fur-like effect resulting from a lighter pressure at the ends of



CONSECUTIVE STEPS USED IN THE
MAKING OF A SKETCH.

the strokes (Fig. 2) should be avoided. Definiteness and a crisp touch is the aim. Strokes laid down with a quick, jerky movement have a brilliancy usually lacking in those more deliberately drawn. Such a treatment of the foliage (Figs. 6 and 9) gives it vigor. This is a matter of skill and must be acquired by practice.

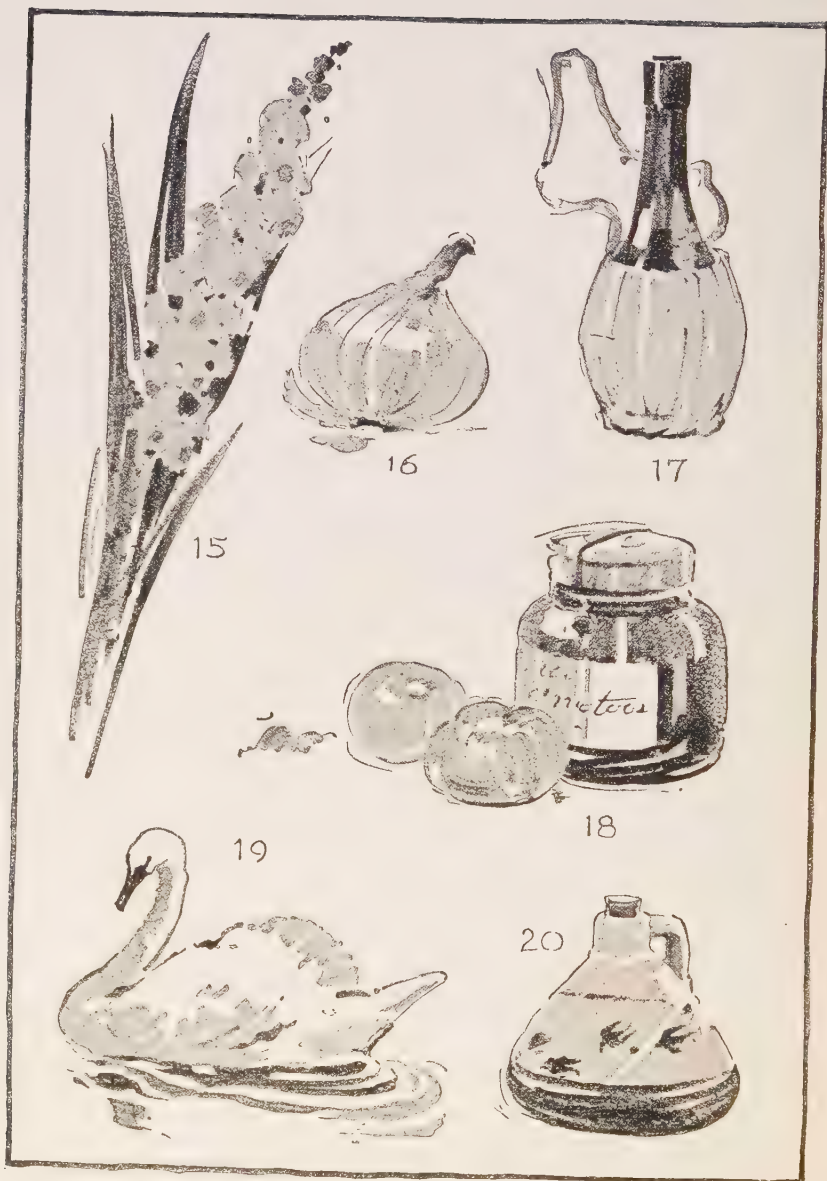
In the most pleasing tones some of the strokes are run together and others are separated slightly from the mass by sharp, thin accents of untouched paper (Fig. 5). How much fresher is a tone thus made than one in which all of the strokes blend in a smooth, flat mass (Fig. 1). As the tones in the sketches on the various pages are studied, it will be clear that the accents of white paper, frequently left between strokes, gives a brilliancy which otherwise would be lacking. Working over freshly drawn tones covers up these white accents and spoils the effect. If a serious error be made in the sketch, it is better to start again rather than to erase or try to patch it up.

As a general rule, the strokes should follow the structural lines of the object rendered. Thus the placing of the straw covering upon the bottle (Fig. 17) suggests a vertical direction and the neck of the bottle is naturally treated with strokes in harmony with its length. In the drawing of the onion (Fig. 16) and of the tomatoes (Fig. 18), the growth lines directed the placing of the strokes.

The arrangement of strokes in the drawing of the preserve jar (Fig. 18), is a natural one. The treatment of buildings is determined by their horizontal or vertical boarding. Whenever the structure of the object does not clearly dictate the method of rendering, the student must experiment until a pleasing one is found. A diagonal direction of stroke is natural for most persons. Such a stroke is used in the drawing of the jug (Fig. 20). Unlike the bottle with the straw covering, this object does not suggest any particular direction. The diagonal treatment is pleasing and a slight curvature of the strokes near the curved outlines suggests the form nicely.

The chapter begins with emphasis upon contrast as the first requirement of a pencil sketch. It has been noted that the brilliant sparkle which is so delightful, is the result of a fine combination of light and dark values.

Objects for sketching, therefore, should be selected with this matter of contrast in mind, and those which give opportunity for a striking combination of light and dark tones can be most effectively treated. Thus the jug (Fig. 20) with the splendid dark pattern is **much more attractive** in a sketch than one without such a decora-



SKETCHES SHOWING THE VALUE OF CONTRASTING SUBJECTS IN PENCIL WORK.

tion would be. The bottle (Fig. 17), the preserve jar with the tomatoes (Fig. 18) and the swan (Fig. 19) are good subjects because of their interesting contrast of values.

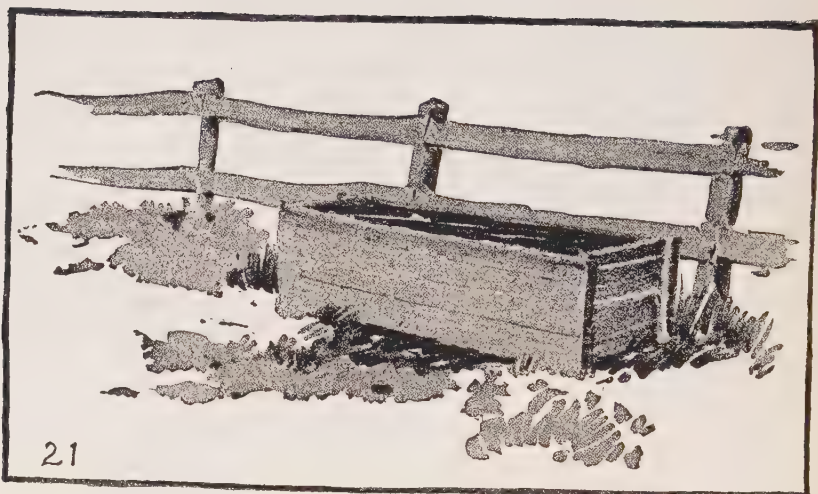
The beginner is inclined to treat white or very light colored objects in outline, believing that the white paper best expresses their value. This is sometimes advisable. But a spray of white flowers appears darker than a piece of white paper used as a background. Rendering them with a light tone gives an appearance of substance that is lacking in an outline drawing, and their light value is adequately represented by the contrast of the dark leafage (Fig. 15). The glistening white onion is likewise effective when rendered with a light gray tone (Fig. 16). The tone, in this instance, gives an opportunity for expressing the high light, which is important in the suggestion of texture. The dark touches on the stem and root emphasize the light value of the skin. It is interesting to note how well the thin, brittle texture of the skin is represented by the sharp, and black lines, which also indicate the growth lines. This character of line may be used effectively in rendering glass or objects with a glazed surface.

OUTDOOR SKETCHING

Much pleasure and considerable perplexity are sure to be found in the first sally upon nature with sketchbook and pencils. Previous work indoors, from objects or from photographs, may have developed skill, but when confronted by all out doors, the selection of the subject, the arrangement of the composition, and the manner of treatment seem like new problems.

The beginner's drawings usually include too much, are too spread out, and contain unnecessary detail. They have the same fault as the first written compositions which are wordy and indirect. The sketch must be the very essence of interest. There should be no detail in it which could have been omitted without serious loss of charm. The simpler the subject the better. A lone tree, rendered with vigor is apt to be more delightful than a whole landscape, a simple old farm, shed more stimulating than an entire group of buildings. The watering trough with a bit of fence (Fig. 21) is more satisfying than it would be if much of the surrounding landscape were shown. The tent sketch (Fig. 22) is good in its restricted selection. Put as little into the drawing as is necessary for a bright, spirited, impression.

Beware of making a photographic likeness of nature. The camera reproduces everything, whether interesting or not. The



OUTDOOR SUBJECTS ARE SIMPLEST FOR PENCIL
TREATMENT ON A SUNNY DAY.

artist should do better than the camera. He should single out the object of greatest interest and emphasize its beauty by omitting all else which does not enhance it.

A series of sketches on page 108 illustrates the method of drawing from nature. The old fish house having been selected as a subject, its outline was drawn lightly as in Fig. 10. The darkest spots were next added with the soft pencil (Fig. 11). The presence of the darkest value at the start is important. It helps determine the values of the lighter tones added later, each tone being compared with it.

The importance of striking contrasts of values in a sketch should be kept in mind from the start, and the darkest touches should be as nearly black as possible.

The third step in the drawing of the fish house was the placing of the dark gray shadow tone on the left side with a medium pencil (Fig. 12). This shadow was made darkest at the near edge and gradually lighter toward the far edge, giving a true perspective effect. This perspective of a shadow tone is illustrated even more clearly in the tent sketch (Fig. 22).

The lightest tones were next drawn and the building itself finished (Fig. 13).

Up to this point all of the attention was given to the treatment of the building, because that is the important thing in the sketch. All else centers around it.

The drawing was then made to spread out and grow around was added. A foreground and a suggestion of distance was deemed necessary and these details were drawn with a few direct strokes, the building as a center of interest. The boat with its reflections

Every sketch should have a center of interest, a spot which attracts and holds the attention and which is emphasized by the subordination of every other part. The interest will be seen to center upon the poplar tree in the landscape on page 174. Its strong dark mass together with that of the clump of bushes at its base dominates the whole composition. The other details are made of less importance by their lighter treatment. A dark spot invariably attracts. The center of interest should therefore be strong in rich dark accents and in contrasts of light and dark. The strongest darks should be confined to the center of interest, for, if distributed over the sketch, the interest will be scattered.

In selecting outdoor subjects, contrast, which, throughout the chapter has been so much emphasized, should be kept constantly in mind. Without it the sketch usually will be monotonous and uninter-



A BRIGHT, SPIRITED IMPRESSION OF NATURE, NOT
A LITERAL INTERPRETATION IS DESIRABLE.

esting. Contrast may be found either in strong light and shadow, as in the tent (Fig. 22) and the fish house (Fig. 14) or in color values, as in the drawing of the poplar tree (page 174).

The tent and fish house depend entirely upon the sunlight for their charm, for the sunlight and shadow give the strong contrast of light and dark. The poplar tree, on the other hand, depends not upon light and shade, for there is no light and shade expressed in the sketch, but upon the beauty of the contrasting color values, the very dark foliage of the poplar, the white branches and the light gray of distant foliage and of the foreground. Outdoor subjects are most interesting on a sunny day for the play of light and shade upon any object usually enhances its beauty.

A factor which has much to do with success in outdoor work is the size of the sketch. The first ones should be made very small, as small as the sketches of the tent and water trough (Figs. 21 and 22). Such a size prevents too much attention to details. Since a quick, spirited impression rather than a labored detail drawing is desired, this is a wholesome restriction. Another advantage of the small sketch is the short time required in its making. It is far better to make five or six small drawings in a half day than to make one or two large ones.

The size of the drawings may be gradually increased with practice and skill, but it is well to remember that the pencil is not a medium adapted to covering large surfaces and that the size of a drawing should be governed by the medium employed.

While brilliancy and crisp accent have been brought to the fore in this chapter, it would be wrong to leave the impression that no good pencil drawings have been or can be made in any other way. Artists innumerable in many different countries and periods have produced beautiful pencil drawings in which their ideals have found expression, sometimes in quiet tones of unaccented greys, sometimes in outlines slightly shaded, sometimes with values carefully and fully rendered. In the last analysis it depends upon the clear intention and technical skill of the artist. Hazy, indefinite ideas; lack of knowledge and observation; little skill with the tools required; all these together spell failure in any production. Know exactly what to do.

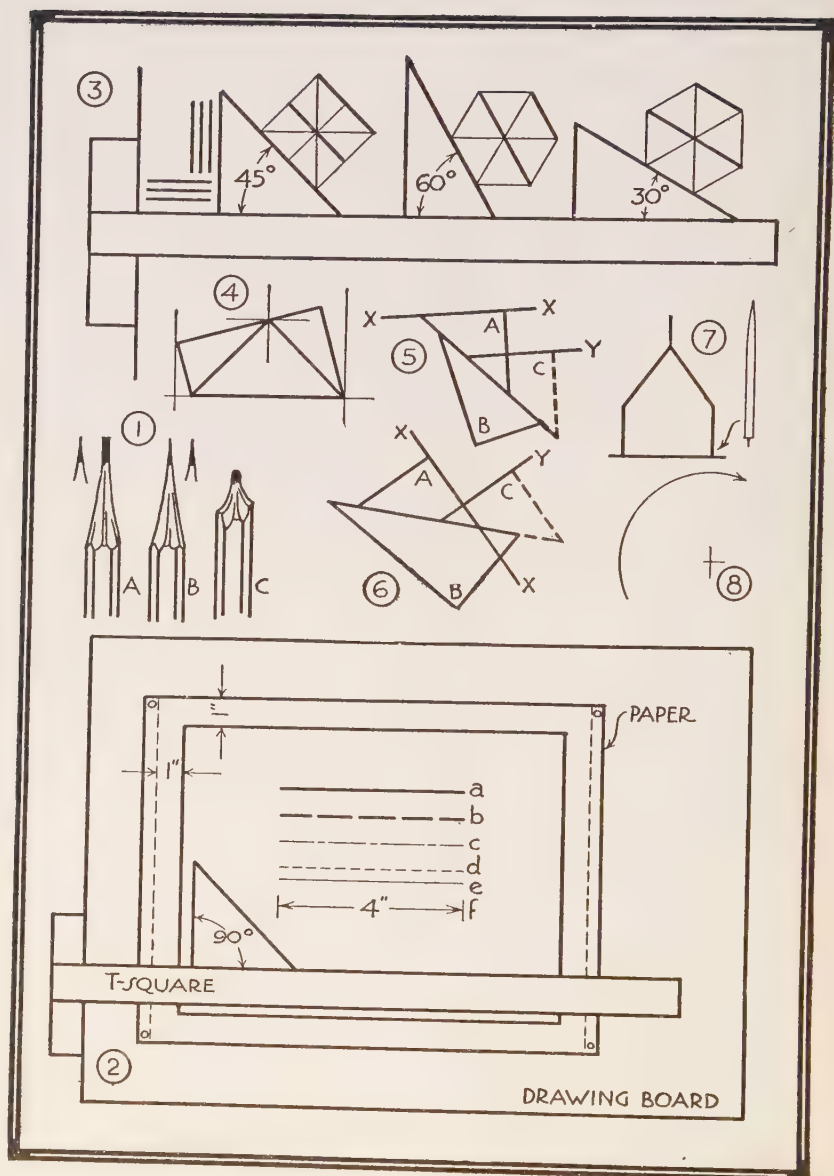
The two drawings which follow suggest proper uses of the pencil in studies where snap and sparkle are not the prime features desired. A careful study of each object has been made with the thought of rendering with care its distinct and detailed characteristics without losing the desirable elements of fresh directness.



•H.B. •

OLD LAMP-POST
EDGARTOWN
•MASS. •





DIAGRAMS ILLUSTRATING THE USES OF TOOLS AND MATERIALS IN MECHANICAL DRAWING.

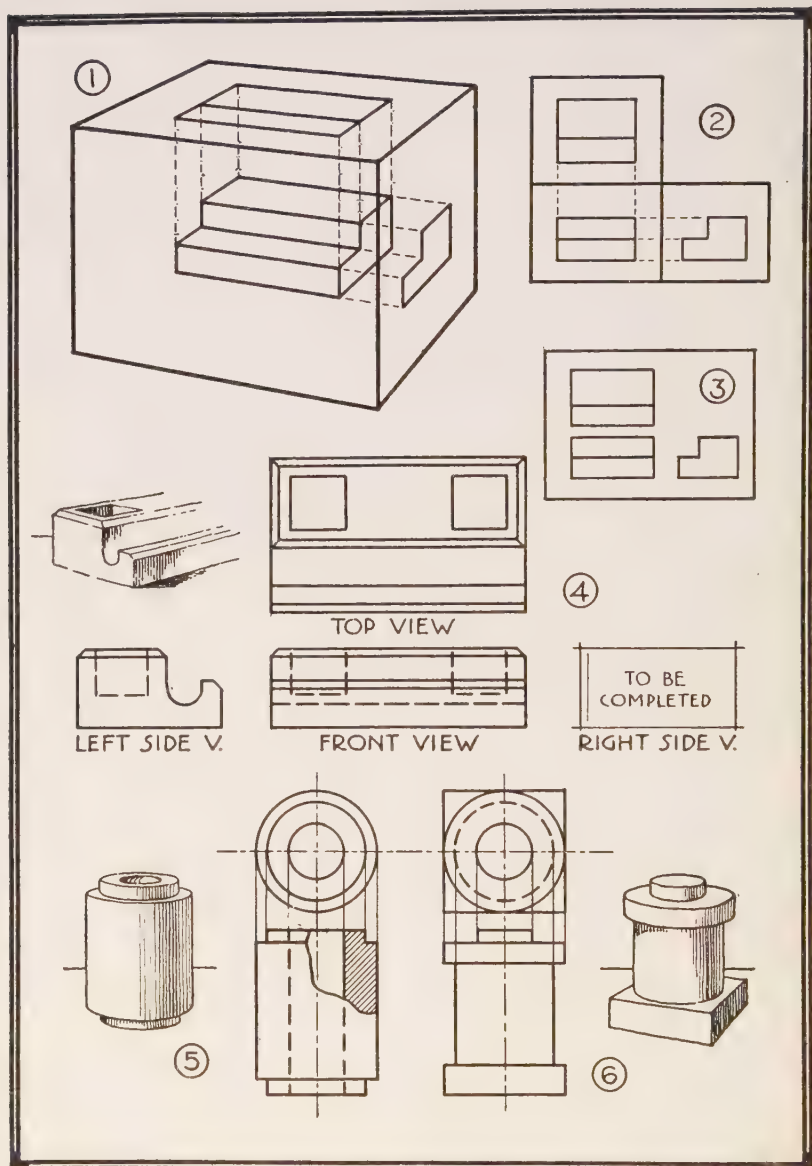
For Mechanical Drawing you are provided with such materials as are in common use by draftsmen the world over. These consist of a drawing board with perfect edges; a T-square; two triangles; a carefully graduated ruler or "scale" as it is called, with which all measurements are made, including those needed in making drawings at less than actual size; a box of instruments including compasses, ruling pen, dividers or "spacers," etc.; a very hard pencil for the accurate construction of the drawing and a medium pencil for lettering. Of course thumb tacks, erasers and suitable paper must be at hand, and for later work, drawing ink. The pencils should be kept carefully pointed as at A and B, Figure 1, never as at C. The hard pencil may have a "chisel" point as at A or like the medium pencil, may have a tapering point as at B.

The T-square is used to draw all horizontal lines, the pencil following the upper edge. Its head should be held firmly against the left side of the board. This is shown in 2 and 3, which also illustrate another use of the T-square, that is, as a support for the triangles when they are used. Each triangle has one right angle (90 degrees). One has two angles of 45 degrees and the other has one of 30 degrees and one of 60 degrees. Figure 3 shows clearly how useful are the triangles in enabling one to draw lines at various angles to the horizontal. By combining the triangles, with the T-square as a base (see 4), angles of 15 and 75 degrees may be constructed.

Figure 5 gives a convenient method of drawing a line parallel to a given line and 6 gives a method of drawing a line perpendicular to a given line. In each case let X-X be the given line. Place a triangle, A, to coincide with it. Set a second triangle, B, against one edge of A and hold it firmly. Slide A to any desired position, as C, when the required line, Y, may be drawn.

When about to draw a circle, bend the legs of the compasses at the joints, as in Diagram 7, so that the ends are perpendicular to the paper, and rotate in the direction taken by the hands of the clock, 8.

Study 2 carefully. Your paper probably measures 11 inches by 15 inches. Leave a half inch strip at each end. Place the thumb tacks through these and when the drawing is completed, trim the strips off. Leave a one-inch marginal space, drawing the margin lines with T-square and triangle. The various types of lines shown will be explained on another page.



THE ARRANGEMENT OF VIEWS IN WORKING
DRAWINGS OF TYPICAL OBJECTS.

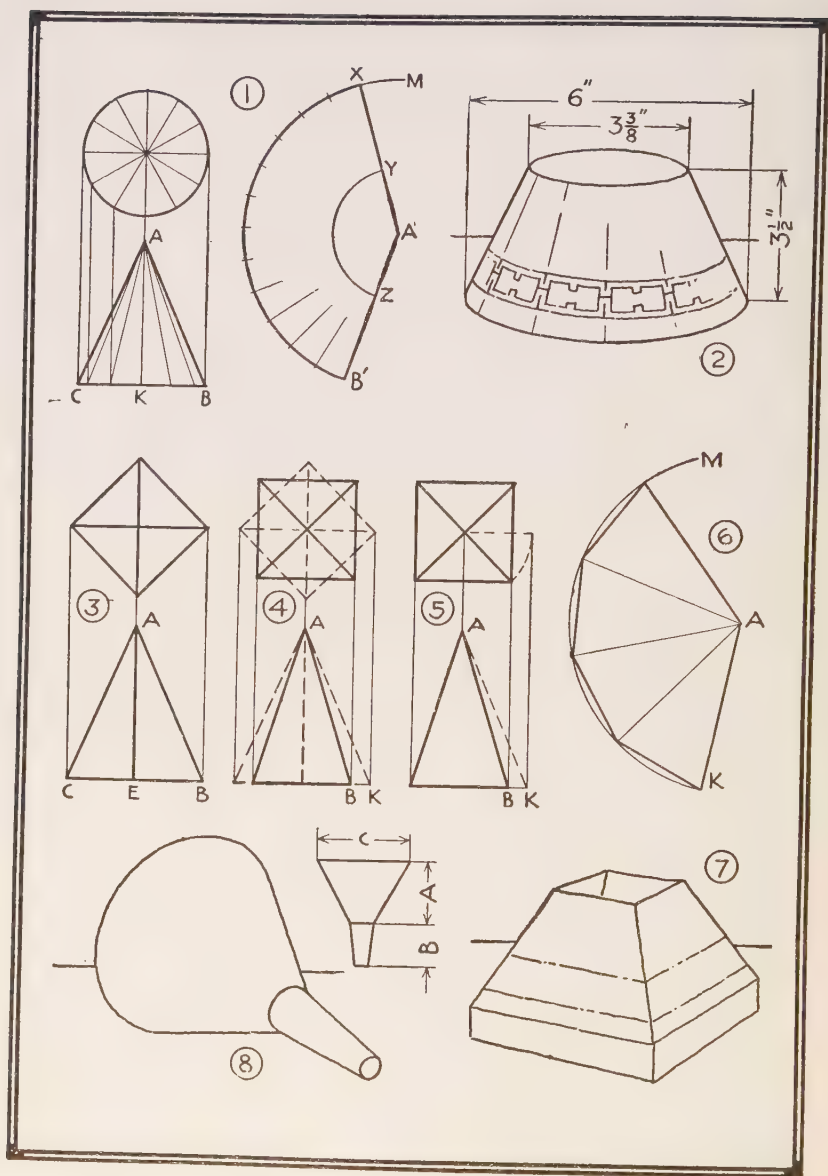
A "sketch" presents the general appearance of an object. A "working drawing" gives accurately all the facts regarding the shape, sizes and construction, so that from it a workman can build the box, the chair, the piece of machinery, or whatever it may be. Three views are usually given, front view, top view and side view, but for some objects two are sufficient, while others require several more. The proper arrangement for these on the paper, will be understood by studying Diagrams 1, 2 and 3. Imagine the object to be enclosed, 1, in a glass box or one which you can easily make, with sides of wire screen. Standing first directly in front, then at the side and then above, the different views may be seen and, if desirable, traced with crayon on the sides of the box. They should be drawn as though "projected" by lines from the various points of the object to the plane of the side of the box, and at right angles to it. In the example given, 1, the drawing of the front view has been omitted for the sake of clearness.

Now imagine the top and side of the box to be revolved into the plane of the front, 2. (If hinges have been provided, this can be actually done.) You now see the arrangement of views, 2, to be adopted in making the drawing on paper, 3. Note carefully: Three dimensions are shown, height, width (across the front), and depth (from front to back). Which dimensions are shown in the front view? Top view? Side view? The front and side views correspond in what series of dimensions? Front and top views? Top and side views? What would the left side view be like?

At 4 is given a working drawing of an inkstand. The sketch of one end may help you to understand it. Try making a full sized drawing of such an inkstand and see if you can "project," by means of your T-square and triangle, the corresponding lines and points from one view to another. You will find that you can save a great deal of time and make accurate drawings in this way. Complete the right side view? Try an original inkstand.

5 and 6 show working drawings of two cylindrical objects. How are they alike? How different? Why are no side views shown?

In order to understand the "conventional" lines used, refer to Diagram 2 on the preceding page. Line a is used to represent the visible edges of objects; b is used to represent existing but invisible lines of objects; c denotes a center line; d and e are forms of connecting lines, projection lines or working lines, as they are variously called; and f illustrates the manner of showing a dimension on a drawing. Make original working drawings.



DIAGRAMS ILLUSTRATING METHODS OF
DEVELOPING THE SURFACES OF OBJECTS.

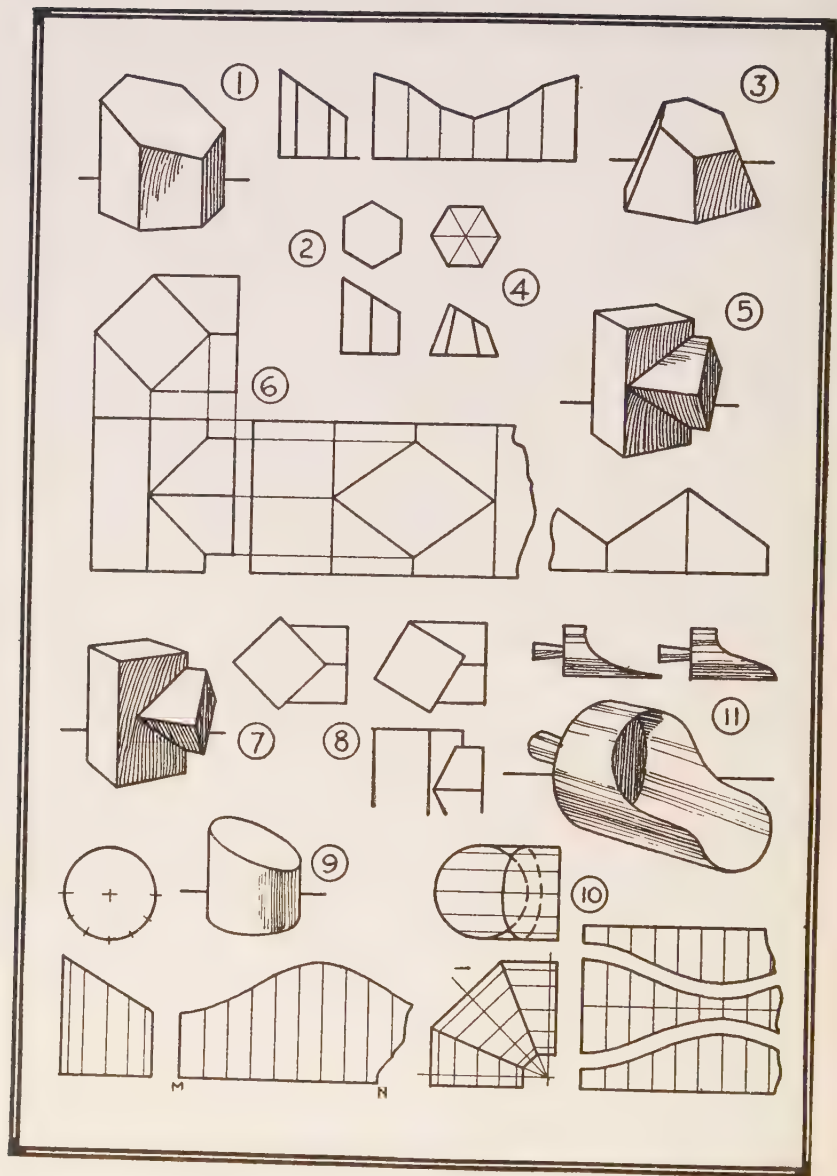
Will figure A'B'X in 1, if cut out, rolled and fastened, form a true cone? Try it and see. Make a working drawing first, of the size desired. Front and top views only are needed. Note that the actual surface dimension from apex to base, of such a cone, can not be taken as line AK on the drawing, for that is foreshortened. AB or AC give the true slant height and must be used on the pattern as the radius for laying out arc B'M from center A'. Now divide the base, as shown in the top view, into a convenient number of equal parts. Take a space on your dividers equal to one of these and apply it a corresponding number of times on arc B'M, which has been drawn indefinite in length. So B'X equals the circumference of the base. When lines A'B' and A'X have been drawn, the pattern is complete. This is called "developing the surface" of the cone.

If an arc YZ were to be drawn and the pattern cut along that line, the resulting shape, when rolled, would be the frustrum of a cone. It would be necessary to construct such a pattern in order to make a candle shade shown at 2. Make the working drawing first, as before. When this is completed and the pattern started, do you see how you must secure the measurement corresponding to A'Z of 1? Place a border design on the developed surface, making use of lines which may be drawn from A' to the division points on the base line. Can you reproduce this design, correctly foreshortened, on the front view? On the top view?

To develop the surface of a square pyramid: AB or AC in 3 must be taken as the true slant height to be used as the radius for laying out the pattern, 6. Why not AE? Suppose the original position were as at 4. AB is now foreshortened and must be revolved to the position AK before the true slant height can be determined. Compare with 3. Figure 5 shows the method usually employed, one in which unnecessary lines have been omitted. Use AK as the radius for KM in 6. Set off the base measurement four times and draw lines to complete the pattern.

Make a working drawing of a lamp shade, 7, one-half full size (if advantageous). A design may be applied to each side if desired. This must first be studied out upon the developed surface and then properly shown, foreshortened in front and top views.

Develop patterns for a funnel, 8, following these dimensions: A is $2\frac{1}{2}$ inches, B is 2 inches, C is 4 inches, and the top and bottom diameters of the small end are 1 inch and $\frac{1}{2}$ inch respectively. These exercises show how necessary patterns are.



SECTIONS AND INTERSECTIONS OF OBJECTS AND
THE DEVELOPMENT OF THEIR SURFACES.

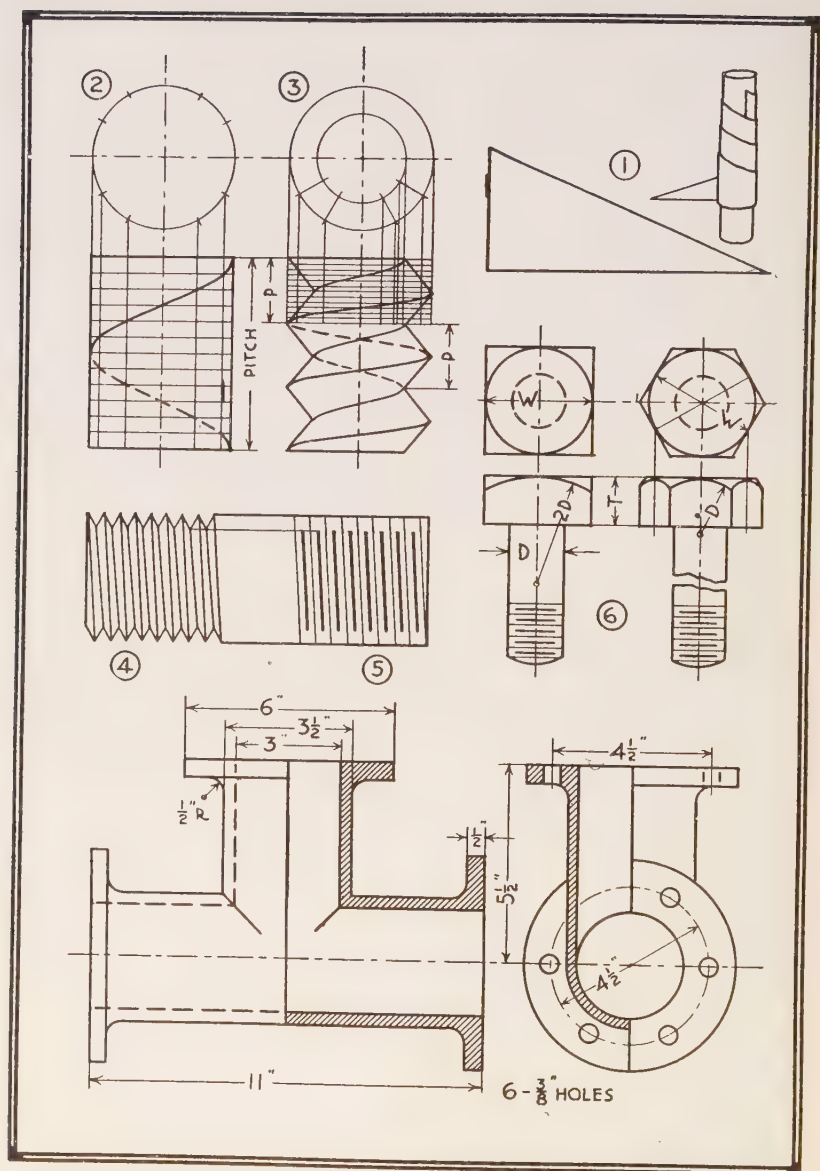
Study the many different patterns which a tinsmith uses. He must not only know how to "develop" all sorts of surfaces, but be able to make accurate allowances for seams and joints and to cut his material most economically. The objects shown on the opposite page are typical of the problems he meets. 1 is a truncated hexagonal prism. Make a working drawing, front, top and right side views, and develop the surface. 2 shows another hexagonal prism but cut with a different section. Develop the surface. In a similar manner, work out problems as suggested by 3 and 4. Complete the top views of the truncated pyramids.

Figure 5 indicates in sketch form two square prisms, equal in cross section, and intersecting at right angles. Make front and top views as indicated, 6, and develop the surfaces. In 7 is suggested a similar problem except that one prism is smaller than the other. A more difficult problem is indicated at 8. Here the upright prism has been altered in position as is shown by the top view. Work out several other problems, using the intersecting prisms in various positions and of various sizes, developing the surfaces in each case.

Figure 9 represents in sketch form a truncated cylinder, the sectional surface of which is a true ellipse. Draw the front and top views as suggested. Develop the surface by drawing base line MN indefinitely and laying off upon it a series of spaces corresponding in size and number to previously made divisions of the top view, which represents the circumference of the cylinder. Project lines from the top view, establishing vertical divisions on the front view. Erect vertical lines on MN representing these divisions. Measure the heights of these lines in turn on corresponding lines of the front view (or project from the front view). Draw a curve, freehand, through the points determining the heights, and true up this curve with an "irregular curve ruler," if you are provided with one.

If the section through the cylinder has been made at an angle of 45 degrees to the axis, the form resulting could be taken to represent one piece of a two-part elbow such as may be seen in stovepipes. A three-part elbow is shown at 10 with the surfaces developed.

Using the explanation made for 9, make a working drawing and develop the surface of a grocer's scoop, 11. Use one of the forms suggested or examine a scoop at your grocer's and duplicate that. Try designing other profiles for the front view.



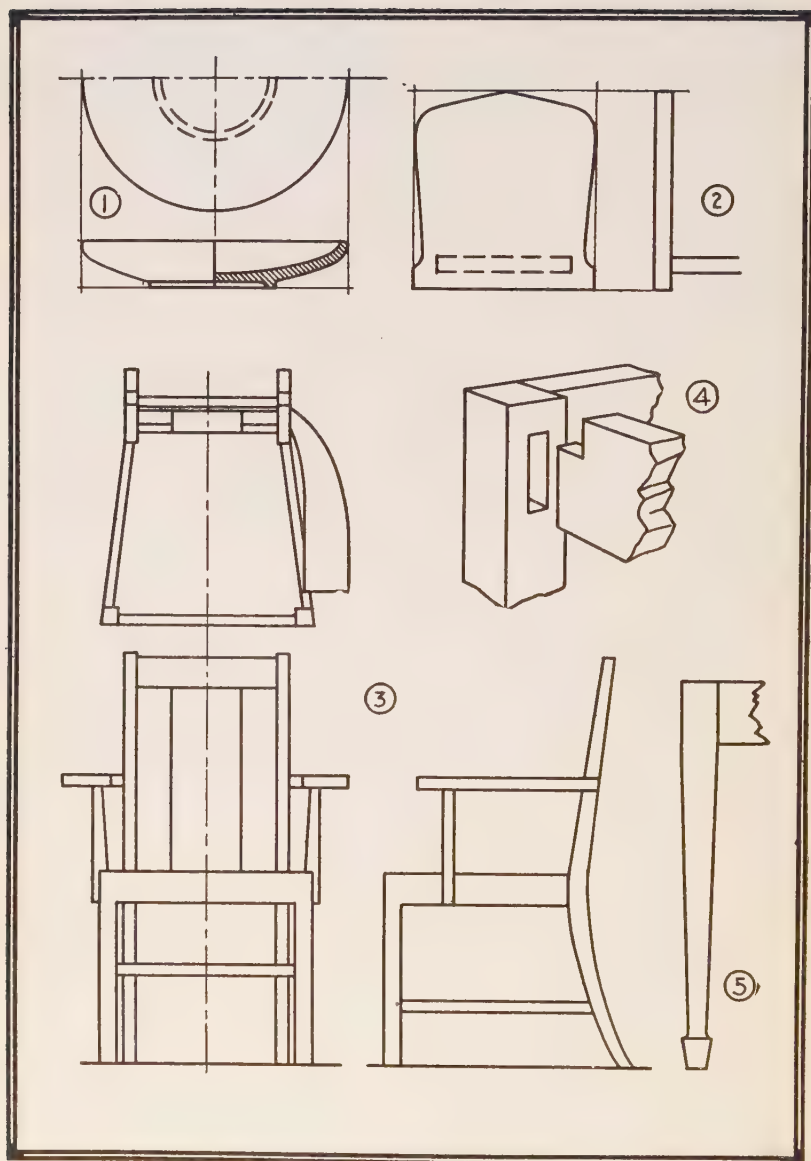
THE HELIX, SCREW THREADS AND SUGGESTIONS
FOR THE DRAWING OF MACHINE DETAILS.

A screw thread is a form of the inclined plane. If you refer to the sketch, 1, on the opposite page, you will see how a piece of paper may be cut to represent an inclined plane. Wrapped around a pencil, this gives a good illustration of a screw thread. Try this experiment. Now hold the pencil directly in front of your eye and you can perhaps detect that the lines made across the pencil by the slanting edges of the paper are not straight, but slightly curved. This curve is called the "helix," and the drawing, 2, shows how it may be accurately worked out. The helix is sometimes described as the path traced by a point which moves with uniform speed around and along a cylindrical form. The vertical distance traversed is called the "pitch." You will see that as the point advances through 1-12 of the pitch, it will go 1-12 of the distance around the cylinder. Its location may then be found by establishing any number of corresponding divisions in top and front views and carrying projection lines from the top to the front view. Succeeding locations may be found and the entire path shown by a curved line passing through these points.

A screw thread would be represented by two series of such curves, 3, one representing the "top" of the thread and one the "root." Note the pitch. This must always be divided into the same number of equal parts as is established on the circumference of the corresponding circle in the top view.

It is seldom advisable for draftsmen to work out these curves in machine drawing. Time is saved by representing them in some conventional way as in 4 and 5. Commonly the angles made by the sides of a thread are of 60 degrees. These may be shown as in 4, or omitted as in 5. The cross lines in both cases are straight instead of curved. You should refer to some good book on mechanics for tables giving the proportions of the threads on various kinds of bolts and screws, and the number of threads per inch for each size. You will also find tables of proportions for the heads and nuts of bolts. The drawing, 6, shows two bolts worked out according to the following formula: $D = \text{diameter of bolt}$. $W = 1\frac{1}{2}D + \frac{1}{8} \text{ inch}$. $T = \frac{3}{4}D + \frac{1}{16} \text{ inch}$. The thickness of the nut is somewhat more, being just equal to D .

The drawing at the bottom of the page gives two views of a three-inch pipe "T." Work these out, one-half full size, and show the top view. As it is always best to establish the circular parts of objects first, the side or end view should be drawn first in this case, after allowing space for the front view.



TYPICAL WORKING DRAWINGS
FOR MANUAL TRAINING PROJECTS.

When preparing drawings of objects which you will make in the Manual Training class, several practice drawings should be made, so that you can develop a design which is truly artistic and perfectly possible of construction. Drawing 1 is of a tray which may be turned out of wood on a lathe. Give great care to the designing of the profile in the front view. One-half of this view should be shown in section, to indicate the depth of the hollowed portions. The book rack, 2, offers interesting possibilities in the matter of design.

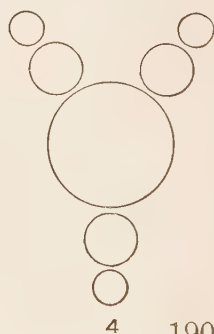
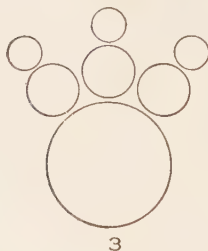
After you have made several working drawings of smaller objects, you will be ready to attempt the drawing of tables, chairs and other pieces of furniture. Before making a drawing of an arm chair, 3, it would be wise to try one without arms. Measure three or four comfortable and good looking chairs, so that you will know the general proportions to follow. In the top view of 3, the arm has been omitted on one side so as to show more clearly the shape of the seat. Note in the side view, that the legs extend farther back than the top of the back. They are so shown in the top view. The drawing of the back in the top view, is an interesting problem in foreshortening. To determine accurately the amount of this, measurements must be taken on some horizontal line in the side view, say at the seat level, and spaced from some established point, as the extreme front.

It is often advisable to include in such a set of drawings, enlarged details of some portions of the construction. These are often shown in perspective as at 4. Such perspective drawing in connection with working drawings is excellent training, and the ability to make them quickly and neatly should be developed. Try making a perspective sketch of some object in the room, placing measurements upon it and then lay out an accurate working drawing from your sketch. Draftsmen must often follow this procedure in their work. Sometimes the sketch, instead of being in perspective, is a freehand working drawing.

With experience you will be able to include certain refinements in your designs, as for instance, the tapering leg and "spade foot" as indicated at 5. Make careful study of refined, dignified furniture which you may see in museums or in the best shops of your city. The old English or Colonial furniture is nearly always well worth study. Compare the simplicity, good proportion and harmony of line exhibited in such examples, with the meaningless forms found on so much of the cheap furniture of today.



A COLOR CIRCLE.



MASKS FOR COLOR CIRCLE.
SEE PAGE 192.

COLOR

The source of color is light. If sunlight is broken into its various parts by passing through some substance as water, or a prism, or by some other method, we have a spectrum, of which the ordinary rainbow is an example. In the spectrum we find the colors from which all other colors are derived. We may call these colors red, yellow, green, blue, purple. These colors are not sharply separated from each other but blend together. These blendings form combinations which we may call red-yellow (orange), yellow-green, green-blue, blue-purple and purple-red. Any color is capable of three different changes. It may change its hue by ceasing to be the same color. It may change its value by becoming darker or lighter. It may change its intensity, brilliancy or "chroma" by becoming more or less grayed.

Any color may be classified as to its hue, value and chroma. If the ten hues which have just been named are made the same chroma and arranged about the circumference of a circle they will appear as in the adjoining plate. The equal mixture of any two opposite colors gives us a neutral gray. This gray we represent by the large central disk. Any color more or less mixed with this neutral gray or with its complementary (its opposite in the circle) causes the color to be grayed or diminished in chroma. The inner circle of lines represents the same colors as those in the outer row with a mixture of gray.

In order to use colors harmoniously we must follow nature's methods. Nature's colors are usually grayed or dulled and we seldom find a pure or brilliant color covering a large surface. Although we are sometimes impressed by very bright colors in nature it will be found that they are used for very short periods of time or in small areas compared to those which are dull or gray. The rule, then, is to use colors which are softened or dulled by mixture with gray or with their opposite colors. If a bright color is used it should cover a smaller surface than that of a dull color in the same picture or design. The brighter the color the smaller the surface it should cover. A very pure or brilliant bright color should cover a very small surface, sometimes appearing merely as small spots, or points. A large area of a dull color will balance a small area of bright color.

The arrangement of the colors on the chart illustrates the principles stated above. Grays and soft-toned colors predominate. Brilliant pure colors occur in comparatively small quantities.

A harmonious color combination may be approximated by following any one of these general rules:

1. Use different values and chromas of one color (self-toned harmony).
2. Use colors lying at opposite ends of any diameter (complementary harmony).
3. Use any three colors adjacent in the circle (analogous harmony).
4. Use a triad chosen from any three balanced arms of the color circle, which form a Y, as purple, yellow and green.
5. Mix a color uniformly with each of the colors of a design (dominant harmony).
6. Black, white, neutral grays and gold combine well with any colors.

It must be remembered that no printing process can insure true color scales. The hues, therefore, in our plate are but approximately correct. It must also be remembered that the rules for color harmonies are at best but general guides and cannot offset a lack of paste. Read carefully pages 133, 202-204, 248-252.

Much help may be had by cutting holes from a sheet of paper or card (called a mask) which will fit on the color plate and expose only those colors desired for a harmony. Different sample masks of this kind of reduced size are shown in Plate 190. All of the colors seen through any one of these masks need not be used. Other values and chroma of the colors so seen may be used. These masks may be turned to fit any part of the color plate. The color scheme for a design should be limited to the colors seen through one mask. Students and teachers are urged to pursue the study of color beyond the bare suggestions given above.

Acknowledgment and thanks are offered to Mr. Albert H. Munsell for the idea of the circle of ten hues, whose works on color are recommended among the useful books elsewhere listed.

COSTUME

ESTELLE PEEL IZOR

It is a truism to say that any training that fits a girl to make a harmonious, economic, and in every way wise selection of the innumerable common things which her daily life compels her to use, is a training that is greatly to be desired. An economic training that is wise in most respects could easily be obtained in many other ways, but it is only an art training combined with that to be achieved by other means that can give the learner the ideas of harmony that will make her economy and wisdom of the highest value. As an individual there is no phase in which a girl is more constantly under the necessity of applying art principles to daily needs than in the matter of costume; and the art course which succeeds in fixing in the student's mind the fundamentally involved relation between economy, adaptation, and artistic harmony has given her for life an asset the value of which cannot be over-estimated.

The principles that underlie the designing of a dress are as old as art itself, and must endure as long as art endures, regardless of the instability of mere style. For this reason, no course in dress-making in school is complete or even worthy of consideration which does not depend on the principles of art for guidance and for final judgment. It is the purpose of this chapter to discuss, from the art side alone, a correlation of art and dress-making in which the aim is not to give a professional training, but to give to girls a wide range of experience to the end of developing an appreciation of aesthetic and economic differences in quality, and a discriminating knowledge of what constitutes beauty in line, form, color, and design. It is here assumed that the teacher of costume has a working knowledge of the principles of design, and that an analysis of these principles will be unnecessary.

STRIPED MATERIAL

The simplest form of expression in design is the spacing of parallel lines suited to striped materials. A study of this involves the kind and quality of the line, its size and tone value, and the proportion of spaces formed by the boundary of the lines. To divide a space into equal divisions, the width of the line and the width of the space being the same, is to produce monotony, resulting



TUCKS AND HEMS
APRONS

as it does in a uniformity which kills all beauty and thus becomes commonplace. Beautiful spacing comes through a balance of unequal divisions.

To teach girls concretely the fundamental importance of what constitutes good spacing of parallel lines, a series of exercises may be given them in which they are required to prepare designs for such materials as gingham, percales, and wash silks. The exercise should cover the following points: the grouping of lines of equal strength and width, but of varying proportions of spaces; the repetition of a group of lines varying in width and tone; modifications of arrangements of similar lines and spaces. These are illustrated in the upper portion of the opposite plate, and in Plate 22. The principles are fundamental in Design. Strive always for fine proportion and for delicacy and charm with the idea constantly in mind that the pattern designed is to be worn. It must be recognized that some designs which are artistically correct are by no means suitable for wearing.

In such a series of lessons the pupil has gained in three definite directions: she has acquired facility in the use of pencil, brush, or pen, thus preparing herself for more difficult lessons to follow later; she has gained a sense of proportion and a knowledge of what constitutes good spacing; and she has acquired some comprehension of the quality of line suited to a given material.

TUCKS AND HEMS

With the power thus acquired, the students pass easily to the application of the same principles to another kind of material, that is, to the problem of good spacing in parallel lines applied to tucks and hems. This application is only another form of the balancing of unequal spaces. The students find that to have tucks and intervening spaces the same width produces monotony; that a contrast between the width of the tucks and the spaces intervening between the tucks is more pleasing (see Plate 194). The space between all tucks should remain the same. Variety may be secured by a contrast of the sizes of tucks with each other. The tucks themselves may vary in both width and arrangement. For example, the outer tucks in a group may be either larger or smaller than the center tuck, and one group may consist of three tucks while another may comprise five, uneven numbers being preferable to even. The width of an entire group of tucks should vary from the width of the spaces intervening between

the groups. Care should be taken also to have a contrast between the width of the individual tucks and that of the hem. The hem should be wider than any single tuck in the group and should be in fine proportion to it. The space between the hem and the group should be larger than the space intervening between the tucks, but should in no way repeat the size of spaces or tucks or hem. There are many ways in which such a study may be applied, as, for example, in ruffles, on undergarments, on the fronts and backs of shirtwaists, and in sleeves. The problems presented exercise the imagination and strengthen the student's sense of proportion.

PLAIDS

Another step in the acquiring of a knowledge of good spacing in design is the breaking of a space in two directions, that is, in the wise use of horizontal with vertical lines, such as is found in plaids. In this problem as in all other problems in design, the division of space into equal proportions is monotonous and therefore unpleasing, as has already been found. When the even division is carried over yards of surface, as is done in check material, it becomes unendurable because of its uniformity. The beauty of a plaid lies in the balancing of unequal spaces. The main lines of plaids should cut the space into smaller spaces of unequal size. The width of the stripe and the line varying from the width of the spaces between, and their relation to the field, determine largely the beauty of the unit.

There are various ways in which the student may secure a better knowledge of good spacing in plaids. A complete unit may be made beautiful by varying the tone values, the width and strength of lines, and the variety of the spacing. Lines forming a section of a unit should be used in such a way as to secure beautiful divisions of space. A consideration of the many different ways of adjusting these lines and spaces will help the student later on, when she is placing her pattern on a surface material, to avoid a haphazard meeting of lines and spaces at conspicuous seams. The coming together of four single units forms a new and different unit. Such exercises make the student more thoughtful and develop in her a finer sense of proportion.

When this has been done, the students may work in different mediums, as, for example, with lead pencil, pen and ink, water colors, or colored crayons, on white paper, gray-toned paper, or colored paper, the different methods of handling and their treat-

ment suggesting texture. The student must continually strive for finer proportion and finer arrangement of spaces, for otherwise the study of plaids will have no value.

SUITABILITY OF LINE TO FIGURE

The foregoing lessons, basic as they are because they involve fundamental principles, are preliminary to the main work of a course in Costume, which is the application of line to the human figure in the designing of a dress. The main lines of a dress should be studied carefully in reference to the size and shape of the girl who is to wear it. While some girls are normal in size and shape, short girls are often either stout or slender, while tall girls vary in the same way. Because the normal girl is easy to dress, we shall not consider her here, but devote ourselves entirely to the other types. Size is of more importance than age when dress is considered, and an overgrown or undersized girl need not feel embarrassed or awkward if her clothes are designed for her figure rather than for her years.

Before entering definitely upon the study of the dress which is to clothe the figure, girls must make a study of the human figure to the end that they may recognize that each figure has its own individuality. This cannot be properly done by the use of the lay figure. Examples of the various types of figures can be found in each classroom. Beginning with the normal girl, drawings should be made in outline of every type of figure in turn. The same unit of measurement is used here as is used in all life-classes, namely, the head. Because of the limited time that can be given to this phase of the work, and the need for great accuracy, the measurements for the drawing of the figure resolve themselves into what is almost a formula. The girls consider the number of "heads" the figure is high, the number of "heads" to the waist, the number required for the length of the skirt, the number through the shoulders, the waist, and the hips, and the number in the length of the arms. The placing of the elbows in relation to the waist, and of the feet to secure a perfect balance of the figure, is essential. By this means the student comes to see the characteristic variations of each figure drawn, and so is enabled later to see that what is suitable for one person is by no means suitable for another without adaptation.

To bring the necessary traits more clearly before the class, an impersonal study of the characteristics of two marked types, the



SUITABILITY OF LINE
TO FIGURE.

tall, slender girl and the short, stout girl, is made with some minuteness. The tall, slender girl is seen to have a long face and head, and long, thin neck and arms. She is flat-chested and very straight, having scarcely any evidence of hips. The stout girl, on the contrary, has a broad, round face and head, and a short, thick neck. Her chest is very full and her hips are large. She is short-waisted and has short, fat arms which she is inclined to carry akimbo.

These characteristics once recognized, the girls make outline drawings of both types, slightly exaggerating the marked features of each, to the end of dressing each of these figures both correctly and incorrectly according to the suitability of line to the figure. It is a recognized principle of art that a repetition of horizontal lines wherever found, invariably emphasizes width, just as a similar repetition of vertical lines emphasizes height. In their study of this principle the girls dress their outline drawings, applying in turn horizontal lines, vertical lines, and large and small plaids to both the slender and the stout figure.

As a result of this study, the slender girl learns that she needs to emphasize every line in her costume that will increase her breadth; that horizontal divisions in blouse, sleeve, and skirt will appear to broaden her figure (see Plate 198); and that puffs, ruffles, frills, and loose blouses will increase her apparent width and will break her severe contour. She learns to avoid skimpy, clinging clothes and small, tall hats, which add to her height and slenderness (see Plate 198); vertical lines in striped material; deep yokes and lines meeting in angles over the breast, which make her look hollow-chested; and tight-fitting sleeves that will emphasize sharp elbows.

The untrained stout girl invariably chooses for her ideal way of dressing the things most becoming to a slender girl (see Plate 198, whom she wishes to resemble as closely as she can, and so is led to forget the appearance of her own figure. In this course she learns to avoid the very things she is thus naturally inclined to, and devotes herself to a study of the effect on her figure of the use of the vertical line. Long vertical lines and an unbroken silhouette are her salvation. She sees that broad belts or belts conspicuous for their color emphasize the bigness of her waist and tend to cut her into equal horizontal divisions instead of giving her the vertical lines for which she is striving; that tight-fitting frocks give an impression of her having outgrown the garment; and that middy blouses look like balloons on her. She learns to avoid conspicuous stripes, bold designs, large pronounced plaids, large dots, figures widely separated, borders, and strong colors;

and to eschew low, broad hair dressings and broad hats trimmed with bows.

Every girl of every type by the same process comes to see that she must study her own figure minutely and critically to discover its peculiarities. She begins to understand that every fashion is not designed for all women, but that the designer of a style had in mind one particular type of figure when he made it, and that it is only ignorance that leads the stout and the slender woman alike to adopt it. When she realizes this, every girl is thereby better qualified to choose her garments with taste and wisdom.

APRONS

Up to this time we have been dealing with abstract principles without definite application to the actual material to be worn. We now approach this definite application in a simplified form, that is, in the making of an apron. In the making of this apron the problem involved is the insertion of lace or embroidery in dainty material. This determines the nature and the purpose of the apron. Since it is to be a dainty apron, the material must be carefully chosen, the design must be good in line and proportion, and the workmanship on the apron must be of a high order. The daintiness required limits the size, which, of course, is relatively small, but the actual size must be determined by the size of the individual girl. The aprons usually range in length from sixteen to twenty-two inches, but the width varies in proportion not only to the size of the girl but to the contour of the design of the apron. The suitability of line to the figure must again be considered. The stout girl discovers that she cannot wear aprons with curved lines, while the tall, slender girl will avoid the use of long vertical lines of insertion.

All plans for aprons are based on three lines, a horizontal line representing the waist line, a vertical line expressing the actual length of the apron, and a second and longer horizontal line which determines the greatest width of the apron. The main shape or design of the apron varies according to the position which the second horizontal line occupies on the vertical line, for by raising or lowering it, the maker governs the angle or curve of the outline at the bottom. For this reason, the apron is capable of limitless variation. Once more we have a problem in proportion and fine spacing, not only in determining the shape of the apron, but in the making of good space divisions by the placing of insertions.

The student must keep constantly in mind the skeleton form of the apron made by the waist line, the line of greatest length,

and the line of greatest width. By joining the ends of these lines she secures not only the simplest form of apron, but the basic form of much more complex aprons. The possible variations in form may be secured by raising and lowering and by extending the line of greatest width; by joining the ends of the skeleton lines with various combinations of curves; and by changing the angle at the bottom. In doing this it is possible to secure such a harmonious combination of acute and obtuse angles as will give variety and beauty in outline.

The next step in the study of the apron is the breaking of the surface with beautiful divisions by the use of insertions. The possibility of infinite variety in the spacing of such divisions makes it unnecessary for any two aprons to be exactly alike. The variation may be secured by placing the insertion parallel to any part of the outline or to all of it; by the use of insertion to break vertical divisions into unequal parts (i. e., (a) into a narrow panel with wider sides; (b) into a broad central panel with narrow sides—see Plate 194; and by the use of insertion to cut the outer panels horizontally into beautiful space divisions. The use of striped or figured dimities used as borders parallel to the bottom of the apron and put in with insertion often adds to the general appearance of the completed articles.

The use of pockets is a problem in itself. It is a practice among people who design fashion books as among those who work independently to place a pocket anywhere on the apron, regardless of its relation to the design as a whole. Pockets out of proportion, whether too large or too small; pockets out of place, whether too high or too low or placed at angles in corners at the bottom of aprons, violate a fixed principle in design. A pocket may be an integral part of a design, but it is necessary that it be considered with the design. If it is to be used, it must be so placed and so a part of the design as a whole that to remove it would be to mar the appearance of the apron. Otherwise a pocket must not be used.

The quality of materials to be used, their economic as well as their aesthetic value, requires special consideration. Quality, durability, texture, beauty, and price should be studied from samples brought to the classroom, where they are freely discussed from all possible points of view. Lawns, batistes, linens, and dimities, with the laces and embroideries to be used, must be given careful consideration. Designs and rhythm in laces and embroideries resolve themselves into a few simple kinds. A few examples of

each kind can be easily obtained for classroom study. As the study of the incorrect dressing of the different types of girls was found helpful in the teaching of correct dressing, so a few examples of bad design in lace and embroidery will help to develop a power of discriminating judgment. It is possible to find laces and embroideries expressing simple rhythm in scallops and borders; those more complex in movement with variety in rhythm; those with accented terminals quite complex in design but harmonious in rhythm; and those with compound rhythm in which one movement is composed of smaller ones in perfect harmony with the whole.

In the use of laces and embroideries the rhythm to be considered is a rhythm not only in line but also in the regular repetition of masses of light and dark, i. e., the amount of light and dark made by the weave of the pattern, which is formed by the close weaving of designs on a background of open mesh. As in all other phases of art, design in lace and embroidery should express only two dimensions, length and width. When flowers, leaves, and vines are used to express different planes, a law of all surface designs has been violated. At the end of such a study, girls have acquired a power of discrimination in the choice of trimmings that can be applied whenever need arises.

It may seem that the apron is treated at a length entirely out of proportion to its importance as an article of dress, but as it is the first concrete application of the general principles laid down at the beginning of the course, it is necessary to devote time to the first application of laws which are used repeatedly in every step which follows it.

USE OF COLOR THEORY

An important factor in this study of costume design is the use of color. The theory of color harmonies should be touched upon only in a concrete way, emphasis being placed upon the phases the direct application of which to dress the immature student will be able to comprehend. Much of the theory of color which results in diagrams and scales counteracts our efforts by fixing in the student's mind the very ugliness against which we are striving. A combination of color may be theoretically correct and practically ugly in the extreme. It is the aim in this course to give such a knowledge of color theory that the student may produce harmonies that can be worn.

For this purpose, the neutral value scale is a necessary factor preparatory to the teaching of values in colors. It helps to develop

a power of determining the amount of light and dark in a color. It is necessary also to have certain definitions—for example, of color, hue, intensity, value—so that teacher and pupil may speak a common color language. Furthermore, it is essential to know the ten fundamental colors. The use of the color circle and the placing in the wheel of these ten fundamental colors in their fullest intensity help to fix in the minds of the pupils the values of the colors and their complementaries. It is wise to produce these in the wheel in the smallest possible quantities, since they are seldom found in nature and should be less frequently found in dress. To require value scales of these fundamentals is to fix in the mind and eye of the student that degree of ugliness in color combinations which we are striving to overcome. It has been found that the tendency of the majority of students after making value scales of the various hues is to choose as samples for their costumes the crude and intense colors found in these scales. The scales should therefore be omitted, and emphasis should be placed upon the different kinds of harmonies to be studied with direct reference to their suitability for dress.

In a study of this sort it is necessary that the terms used should be identical in meaning to writer and reader alike. For this reason some definitions are essential, but no attempt will be made to define the different harmonies absolutely. For the purposes of this discussion, the terms "dominant harmony," "analogous harmony," "complementary harmony," and "contrasting harmony" will be used in the significance set forth below.

A dominant harmony is a harmony composed of two or more values of one color.

An analogous harmony is a harmony of different values of neighboring hues, that is, hues or colors which are found in close juxtaposition in the color charts or circles, as, for example, green, yellow green, and blue green; blue, blue purple, and purple; and orange, yellow, and red.

A complementary harmony is a harmony of extreme opposites. In the color wheel of ten fundamentals with the intermediate hues between the primaries and secondaries, the colors forming the complementary harmonies are opposite each other.

A contrasting harmony may be any harmony from a dominant to a complementary. However, the best range of contrasting harmonies lies between the analogous and the complementary.

These different kinds of harmonies are the most valuable part of the theory of color in its relation to dress. A dominant harmony

suited to an individual costume is based on contrast in values. This harmony can be secured by neutralizing in different degrees one or more of the values, and using one value in full intensity but in small quantity. Three consecutive values may be theoretically correct, but they produce monotony and are no more beautiful in color than are three consecutive tones in music. A wide range of values and unequal quantities of these values will produce better harmony. Violent extremes in values are as disastrous as too great similarity.

An analogous harmony may be produced through the same process as the dominant. It will require a thoughtful discrimination in the selection of analogous colors, a wise choice in the contrast of values, and good judgment as to the degree of neutralizing the values. It is the most subtle of harmonies and may be the most beautiful if wisely selected. The best harmonies can never be secured by merely a change in hue without change in value. Neutralizing one or more hues will not relieve the difficulty. It requires a contrast in values used in unequal quantities to produce a beautiful analogous harmony. In like manner, contrasting and complementary harmonies may be developed. It is in contrasting colors that our widest range of harmonies in dress may be found. Effort must be made to develop good judgment and a sense of beauty in producing distinctive harmonies. A costume that is beautiful in color will never blaze with color; in no way will it disturb the eye or offend good taste. While its general effect is that of subdued glow, it may be composed of colors which, though rich and sometimes daring when seen separately, are brought together in such a way that one enhances and enriches the other.

Color sense is gained through observation and experience. In the acquiring of this color sense, formulas alone mean nothing. It requires earnest effort on the part of the student, reinforced and directed by the teacher, to produce distinctive harmonies. An appreciation of finer relations is gained by basing one experience upon another, and continually striving for a finer sense of balance in color values, and for greater beauty and enrichment in color combinations.

SELF-CRITICISM

So far in the course, except in the case of the apron, the appeal to the aesthetic sense has been made through types in general, without application to the particular individual. A close and inti-

mate study of self is imperative in the preparation for the designing of wearing apparel suited to each individual. Girls should not be asked to spend *more* time in thought of dress, but to spend the time ordinarily devoted to the purpose, to a systematic study of self. The danger lies not in too close study, but in an undirected study of self, which may result in false standards with respect to color, quality, and cost. All girls have a degree of taste, a kind of taste, but not necessarily a discriminating taste. When left unrestrained and unguided, their choices often cause not only their family but the public to suffer. Human feeling should lead every one to appear neatly and appropriately dressed, for the influence of dress acts upon the person who sees as well as the person who wears.

Since self-criticism is one of the chief aims in the study of Costume, the girl should study herself critically in the mirror, discovering her height and breadth, the shape and contour of her figure, her defects, and her pleasing qualities. She should study analytically the color of her eyes, hair, and complexion, and the character and type of her face and head. She should study herself in the exact manner and spirit that she studies a foreign object, as for example, another girl whom she intends to draw. In order that she may fix her own individuality more firmly in her mind, and because she has further use for the drawings, she should make careful and accurate drawings of herself, both front and back views. She needs to recall the former lesson in drawing the different types of girls, and to apply this knowledge to the drawing of herself. Eventually each girl must be able to draw her own figure, putting into it her own characteristics, defects, and good points, for it is her own figure she is to learn to dress, and not a lay figure.

It is not intended to use the lay figure at any time in the course. One often wonders why the finished product does not appear like the pictured pattern. It is because the pictured pattern represents the exaggerated proportions of the lay figure. It has been found by actual measurement that the normal figure varies from seven to eight heads high. The average fashion plate figure, which is a lay figure, is fourteen heads high.

The student will find that the making of color notes of her head will help her to fix in her mind the exact color of her hair with the play of light and shade over it, the color of her complexion with the particular color of her lips and the flush of the cheeks, and the exact color of her eyes. Each girl has an individuality of her own which marks her distinctly from all others. It is this individu-

ality, however commonplace or distinctive, that should be studied carefully with a view to securing suitability of line to the figure and of color to the complexion.

COLOR OF MATERIAL AND COMPLEXION

No more convincing argument in choice of color in material suited to the complexion can be made than the actual experimenting with dress materials upon the different types of girls in the classroom. Girls are too often influenced by the beauty of a color, regardless of its effect upon the complexion. Each season brings its popular shades and colors in dress materials. The blonde and the brunette alike rush for them, regardless of the effect such colors will have upon their individual complexions. There is a rule that a blonde may dress in harmony with her eyes and a brunette in harmony with her hair. It is a good general rule, but there are many types of blondes and brunettes, each of which requires individual consideration in the choice of colors. The pink and white, the colorless, the sallow, and the red-haired blonde, each distinctive in her coloring, require special individual study. There are as many types of brunettes as there are of blondes, namely the genuine, the fair, the sallow, the brown, and the olive, each distinctive in her own way. The colors suited to one of these types will in no way be suited to any other type. Each girl is a problem in herself, and should make an effort to choose the colors which best suit her own particular coloring.

In helping girls to choose harmonious colors, four or five girls may be chosen to represent as marked types as possible and the differently colored dress materials may be tried upon them in the presence of the class. No further argument of the effect of these colors upon the different types of girls is required. For example, certain hues of red upon a brunette will bring out the pink and white of her complexion, while the same hue will make another appear yellow. Under a similar experiment, some blondes will appear ashen, while another type of blonde will grow purple or perhaps green. The moment one is doubtful about the use of a color of material with a complexion, it should be counted unsatisfactory or a failure.

A common error is prevalent that the pale girl should wear colors which impart color. But pronounced colors emphasize pallor. A brunette with a rich red and cream complexion should choose colors with a view to diminishing her color rather than emphasizing

it. Harmonious color effects are not necessarily a question of choosing quiet colors. Some students require deep, vivid color, and for these girls to choose dull, neutralized colors would be to show bad taste. As a rule brunettes require much stronger color than blondes. Blondes appear best usually in dull or faded colors. The blonde with gray-green eyes will require different colors from the blonde with the clear blue eye, while the blonde with hazel eyes will be more easily dressed. It has been erroneously said that the red-haired blonde must never wear blue. Titian found several centuries ago that a certain combination of red hair with blue-green produced a wonderful harmony. The red-haired girl needs to avoid all hues of red or any pronounced colors. Faded heliotrope, dull, golden browns, peach blow, apricot, and certain other modified colors may be beautiful upon her. A color in the material which contrasts with that of her hair will produce the greatest harmony.

The brunette with her dark hair and skin and her flushed cheeks may wear brighter, stronger colors, but a sallow type requires different colors from the clearer types. The "nut-brown mayde" may be beautiful or ugly according to the choice of color made. She requires combinations entirely her own, e. g., dull russets, faded browns, and dull reds, such colors as are found in wind-tossed autumn leaves. The olive brunette, with her deep, rich, brown skin verging to a clear olive green, may also be beautiful in wisely chosen colors, such as amber, maize, cafe-au-lait, dull orange, dull rose, deep and rich, chestnut browns, etc. The no-type-in-particular girl may appear in harmonious colors if she selects with care and discrimination the colors which especially emphasize any good quality in her own individuality. There is no hair, no complexion, whether beautiful in the extreme or thoroughly commonplace and uninteresting, that does not require appreciation of essential qualities and good judgment in the selection of colors, to make the beautiful more beautiful, and the homely more tolerable.

WAISTS

All that has been said about suitability of line and color to the individual is now to be directly applied to the dressing of that individual. The logical order of study begins with the waist and ends with the dress. Design in relation to the problem of the waist pertains to the orderly arrangement of the parts in their relation to the whole. An understanding of such principles as order, rhythm, and balance in line, form, and color is as necessary in design as is

the knowledge of an alphabet to the study of a language. To acquire the ability to recognize, appreciate, and arrange lines in harmonious relations in a waist is to acquire the coveted power to choose well what is suitable to the individual.

In a costume course based on design, the study of waists will require close individual research, selections, and adaptation of the many interesting features found among the prevailing styles. The students' use of the extreme foreign style books and the more moderate domestic style books should properly come under the wise guidance of a teacher. It is the opportunity for the student to gain in power to choose and use the best of any prevailing style. This lesson may be conducted in many ways, as, for example, by noting the radical changes in the styles, the tendency towards certain new lines which govern the design of the waist, the various modifications of old ideas, and the changes that come in collars, cuffs, sleeves, and girdles. To what degree the new styles obey art principles, and if not at all, in what manner they may be modified to obey these principles, are questions next to be decided.

The purpose of the waist governs the choice of materials. The age and size of a student should also be considered in making this choice. The different kinds of materials suited to the purpose, the laces, embroideries, and materials, whether plain or figured, to be used as trimmings, may be treated in a manner similar to that used in the lesson on materials in the problem of the apron.

In choosing material for a waist, daintiness rather than richness in color or material should govern the choice. The color should be in harmony with the skirt in order to preserve a degree of unity. No matter how fine the material or how elaborate the trimming, the fact remains that the skirt and waist appear as two separate garments, and not as one complete whole. Visits to the stores will help the student to note the tendencies of prevailing styles and materials. In making these visits, the knowledge gained through previous lessons in costume study will help her to observe intelligently.

The lesson of designing a waist may be developed in many ways, but here only one method will be considered, that of adaptation. In the present day, the character and cut of the sleeve determines largely the style of the waist. There are waists with the normal arm-eye and the shoulder seam, and waists with the normal arm-eye but with the back brought forward over the shoulder to form a yoke. There are waists with the drop-sleeve, with or without shoul-



der seams, and waists with the new kimono sleeves. The plainest pattern that can be secured of each of these types should be chosen to serve as foundation patterns for the waist that the student is to design.

An accurate tracing of the drawing of self gives the surface space which is to be used in the designing of a waist suited to the individual. Four space divisions are to be considered, that is, the center or front, the sleeve, the collar or neck, and the girdle. The space division of the center formed by the enclosing lines of the figure, form the dominant or main idea upon which the design is based. The harmony in the design of the waist will depend upon the relation of the parts to the whole.

The design will vary according to each individual's choice and inventive power. Beginning with the first type, the simplest form is the plain tailored waist with shirt sleeves. In a tailored waist, shortening the sleeves and changing the shape and character of the cuffs necessitates a corresponding change in the collar and in the front of the waist. The character of the waist is thus entirely changed, but the waist can still be cut from the original pattern. The various ways of arranging and placing the groups of tucks, laces, frills, vests, or folds will greatly modify the appearance of the waist; and the balancing and repetition of these parts in relation to the harmony of the whole in waist and sleeves, constitute a distinct lesson in design.

There are endless possibilities in modifying the drop-sleeve. This may be done by varying (a) the length of the shoulder, and the shape of its outline; (b) the space dimensions in the front of the waist (see Plate 209); (c) the direction and character of the line formed by the yoke; (d) the line of the collar and its corresponding likeness in cuffs; and (e) the repetition of spacing and finishing the sleeves in relation to the front of the waist. In similar manner each type of waist may be studied and designed in turn. The exercises in designing waists offer ample opportunity for creative imagination, and are sure to develop a better knowledge of proportions and greater ease in the planning of good spacing.

THE DRESS

The principles that underlie the designing of the dress are the same principles that underlie all phases of art. The student is to learn that principles never change, but that only the form of expressing them changes with a passing style. The application of

these principles requires a thorough grounding in what has previously been taught.

The principal element in the designing of a dress, as in all other art problems, is good spacing. It is the balancing of masses of light and dark. It is the grace and flow of lines, and the rhythmical repetition of lines and colors expressing fine proportions. It is the beauty of space divisions. It is the subordination of parts to leading lines, to tones, and to color harmonies, so that they mutually enrich each other. Only in so far as a design embodies these qualities is it beautiful.

The best examples of design, the best combinations of color that can be obtained should be kept before the student. Japanese prints with their examples of rhythmical flow of line and color in costume, and certain masterpieces of Vandyke, Rubens, Velasquez, Rembrandt, Franz Halz, and many others, with their silent lesson in the breaking of spaces by the use of masses of color, are indispensable in a costume classroom. Constant association with such works of art increases the student's power of appreciation of what is fine in line, color, and design.

The chief requisite in designing a dress is good taste. Since Nature does not endow all students in an equal degree with good taste or a sense of color, these must be cultivated in them. The taste of any untaught person will be easily satisfied by the usual and the customary. Good taste never produces the commonplace. Style and the latest fashion are not necessarily in good taste. Good taste is the suitability of line to the figure, of color of material to the complexion, of dress in line and color to the occasion, and of cost of material to the pocketbook, whether that pocketbook be very full or nearly empty.

Design is the first element of good taste to be considered. It makes impossible the covering of the dress with little patches of color, or little bunches of stuff of different materials, and excess of ornament, even if the materials used are marvels of beauty in themselves. It seeks, rather, the dignity of long flowing lines, and graceful curves much happier unbroken, which envelop the contour of the figure and hide the defects; a refinement in space relations; and an enrichment of color. A design is satisfactory only when it possesses simple charm, when the details of which it is composed disappear in the general harmony of the whole.

I am not unmindful that design must not be separated from the workmanship, from the finger-skill of the maker. A dress may fit perfectly so far as snugness goes, and not have a graceful line

in it. All beauty may be stitched out of it. The grace and flow of a line, the sweep of a curve, involve not only the sensitiveness of the designer, but the skill of the maker. There should be a balanced and happy co-operation between the two. Happy indeed is the possible combination of the two in one person—the student.

In addition to the work on materials previously outlined, which must of course be applied in detail here, time must be spent on an analysis of textiles. To become an intelligent consumer, the student needs a knowledge of fabrics, their characteristics, their weaves, their fibres, and their possible adulterations. With this analytical process, the aesthetic side must be considered. The student will combine beauty and utility by learning to recognize what effect certain textures have upon the size and shape of the individual. Rough materials, coarse and heavily woven, such as are found in "novelties," increase the apparent size of a girl. Glossy surfaces, such as are found in lustres, silks, and satins, and light or bright colors above middle value reflect the light and serve to accentuate size. On the other hand, colors below middle value absorb light and decrease the apparent size. Dull, soft surfaces, smooth and closely woven, tend to make one appear smaller. The quality of material in relation to the design of a dress needs consideration. Stiff, wiry materials will not lend themselves to folds, frills, or plaits. Draperies and tunics require soft, clinging materials.

Considering materials from the utility side, some are damaged easily by straining, by musing, by fading, or by shrinking. Some suffer from cleaning. Certain substantial grades of wool are excellent for hard and frequent wear at school, while finer qualities of wool more flexible and pleasing in color and in decorative quality are more desirable for afternoon dresses. Girls can easily be given a knowledge of these essential points through a series of well-planned lessons supplemented by thoughtful visits to stores.

Not only the quality of textures, but the character of the designs in textures affects their desirability. Boldness in design in materials, conspicuous color combinations, pronounced plaids, and very broad stripes attract attention. Quiet, modest figures, indistinct stripes and plaids, and rich harmonious colors are evidences of good taste. The use of simple, girlish materials which will enhance the grace and beauty of the girlish form should be encouraged. A young girl should not be permitted to spoil her youth and charm by wearing materials that belong to an older generation.

In choosing accessories, seek only such trimmings as will enhance the harmony of the whole. The principles which govern the good design in laces and embroideries are the same principles that govern good design in figured silks and all kinds of trimmings. The design in these materials is successful when it expresses flat surfaces, with pleasing distribution of masses of color varying in hue and value, arranged synthetically and according to the fundamental principles of design. Enrichment comes by the right combinations of contrasting colors. It must be remembered that no amount of fine ornament or rich materials will redeem inharmonious colors.

It is the function of the teacher to call attention, to direct and guide the student in establishing a habit of choosing wisely from the conglomerate array of styles. The student must be trained to see that even in the startling trend of present-day styles it is easily possible to follow the fashions and yet not appear ludicrous; that extremes are short-lived; that to be well dressed is to be inconspicuously dressed; that simplicity is not poverty, but the very foundation of beauty and refinement. No matter how insane the styles may seem, the girl of fine taste can overcome all ludicrous expression by individual choice which is in silent obedience to the basic principles of design.

The main lines of a dress depend upon the prevailing styles, the size of the individual, and the quality of the material. Lines mark the boundary of spaces and the silhouette of the figure. They are used in many ways. Formed by seams, tucks, plaits, and yokes, lines break spaces into pleasing or displeasing shapes. Ruffles, frills, and trimmings sometimes furnish very pronounced lines. Long, sweeping lines and graceful curves are more beautiful than short, jerky lines that divide the dress into sections. Above all, the class must be led to appreciate the placing of the constructive lines formed by the seams, for they are as much a part of the design as any ornament of the dress.

In designing dresses, students must apply all the principles of design already acquired and in much the same way. In the analysis of fashions as set forth by foreign and domestic style books they must once more note the radical changes of the season first in the dress as a whole and then in the separate parts of which all dresses are composed—waist, sleeves, girdle, skirts, etc. They must consider the modifications of older ideas, and also the present day tendencies. Such study naturally involves a consideration of types of skirts, the different kinds of tunics and draperies, their varying length and shape, and the methods of trimming and draping; also the con-

structive lines of the waists, the placing of the openings and various methods of trimming, the tendencies in sleeves, waist lines and girdles. The student must use these ideas of the prevailing styles as a craftsman uses the various materials out of which he shapes his designs. Tucks, folds, ruffles, tunics, draperies, and various trimmings furnish the motifs of the designer. The student must know the limitations as well as the possibilities of her materials and how to display her materials to the best advantage in order to produce the greatest beauty. In the use of these ideas the student is given ample opportunity to express her individuality and power of independent inventiveness as she applies to the problem in hand the knowledge of design she has already gained.

In the designing of a dress as in all other problems in design, we begin with a central and dominant idea, which controls the basic forms and lines of the dress. It is what establishes character and style in the dress. The unity of the design will depend upon the simple and definite disposal of this main spacing. The direction and the arrangement of the constructive as well as the aesthetic elements should be pronounced enough to maintain interest and hold attention. The principles of subordination must be considered; what parts there are to be and where the parts are to be placed depend upon their relation to the dominant idea. This includes the repetition of certain lines and masses of color with the direct intention of producing fine harmony and good spacing—a subordination and repetition which produces not mere patches and spots, but which causes parts to merge into one harmonious whole. To the student who has ready invention combined with an appreciation of what is meant by good spacing, subordination to leading lines and color harmonies, there will come a certain joy in the achievement. It should be the student's earnest effort "to make beauty the commonest instead of the costliest of experiences."

The measure of success of such a course as is here outlined is the character of the impression made upon the girls who take it. The aim is to make them realize that it is to principles rather than to fashion plates or personal opinions that we must turn if we wish to be distinctively dressed. Money standards must be abandoned, a slavish following of that which for the moment happens to be the vogue must be made impossible, and the futile endeavor to appear to be that which we manifestly are not, must be replaced by a fixed practice of considering from the highest ground possible our own individual limitations and possibilities of every kind. When this has been accomplished, girls in every walk of life from the

humblest to the highest will have acquired what may be precious to them beyond price—a power to express self in a fine form, unhampered by sordid or other unworthy considerations. Knowledge is power, but knowledge applied in a true way becomes wisdom, and it is wisdom in dress which we have here striven to attain.



ART APPRECIATION

A NOTE FOR THE TEACHER

The Aim of the Chapter—The following chapter aims to give in very condensed form, a course in art appreciation or picture study which has been successfully given year after year in a typical high school. While the chapter is written for the pupils to use as a text, it is assumed that the teacher will consider that its most effective use will be as a basis for developing the various points presented. Each major topic should furnish material for several lessons, if the kinds of study suggested are fully worked out.

A Collection of Reproductions of the Masterpieces—Every school should possess a collection of photographs or cheaper reproductions of the work of the great artists. In the bibliography at the end of the chapter will be found the names of several publications which bring such pictures within the range of any school or teacher. Pictures are most useful when they are mounted on cards of uniform size and arranged in alphabetical order of the artists' names. Such a collection of cards can be kept in a filing case made for the purpose, in a deep drawer, or in a box with a cover to keep out dust. The cards are kept on edge after the method of a card catalog and, alphabetically arranged, they catalog themselves.

Notebooks—Each pupil should make a notebook which should be illustrated both by tracings and sketches and by half-tone pictures of such master works as he chooses to illustrate each point studied. The teacher should guide the class constantly and suggest the best examples for study. While many definite examples are referred to in the text, the teacher will add many other suggestions in her teaching. The chapter may be made a definite basis for the pupil's notebook, his original work being comparisons and studies from examples, the selection and mounting of pictures, and the making of tracings and sketches for the book.

Notebooks should be of a uniform size and of unruled and fairly heavy paper. Only one side of the sheet should be used. Time is well spent by the teacher in giving definite directions in

regard to the form in which notes should be kept, the matter of margins, and the way to trim and mount pictures. A notebook on art appreciation should be something of a work of art. At least, it should be neat in appearance.

Collateral Reading—A great many of the pupils can be interested to do a considerable amount of reading along lines which are directly suggested by the study of pictures. Thus some knowledge of the history of art may be gained, and general history as well as literature may be related frequently to the art study. The list of books at the end of the chapter will be suggestive in this connection.

INTRODUCTION

The Arts of Form Have Much in Common—The student who learns to appreciate any one of the fine arts must gain a point of view which will help him greatly in acquiring the power to appreciate the others. For example we would expect one who understands and enjoys painting to enjoy sculpture with some degree of intelligence, since both these arts deal with the representation of form. It is not quite so obvious how an intelligent interest in architecture can grow from an intelligent interest in painting. If, however, we understand that architecture is an arrangement of forms for the sake of beauty, it becomes clear that it must have much in common with the other two great "arts of form," painting and sculpture.

Reasons for Beginning With the Study of Painting—Probably the majority of young people take more interest in painting (and pictures in general) than in sculpture and architecture. Moreover, photographic reproductions of paintings generally give better impressions of the originals than do photographs of statues or buildings, and much of our study must necessarily be from photographs. For these reasons it has seemed best to begin with the consideration of painting, in the belief that an appreciation of pictures may serve as a foundation upon which to build an appreciation of the other arts of form and color including those minor arts known as the "arts and crafts."

Painting Is a Language—Painting may represent something actually existing in the visible world, as for example a portrait of a person or of a place, or it may give us a composition which

the artist has imagined. In any case painting must be thought of as a language which the artist uses to express an idea. His idea may be his impression of something he has seen, or it may be a creation or arrangement of his imagination, but the picture is built up by means of lines, spots of dark and light, and color. These are what make up the language of painting. The aim of a painter of worth is to use his language so that it expresses some emotion which he has felt. The observer who understands and responds to the language of painting will feel something of the artist's emotion.

Painting Can Express Only Ideas That Can Be Shown by Form and Color—Beside the arts that appeal to the eye (the arts of form), are the two great arts of music and poetry which appeal to the ear. Each of the arts has its own appropriate subjects and the wise worker in any one of the arts sticks to his own field. There are plenty of examples of attempts on the part of painters to express ideas that could be better expressed by poetry. The painter is limited to the representation of things at a selected moment. The scene at that moment may suggest in a measure what has gone before or what is to follow. Strictly speaking, however, a picture cannot tell a story, represent movement or reveal in any definite way the conversation or thoughts of characters depicted. This does not mean that a painter should never paint a subject borrowed from literature, but if his picture is good art, it will be interesting as a painting even if the literary reference is not taken into consideration; in fact, it will be complete as an expression in form and color of a given subject which in itself commands attention.

A Comparison of the Fields of Poetry, Sculpture and Painting in a Given Subject—Take for example the subject Paul Revere. In the poem, Longfellow gives us the landlord's narrative told in the Wayside Inn. We are taken back in imagination to Revolutionary times and introduced to the hero and his friend who hung the lantern signals. We get a series of vivid night pictures, we climb the belfry tower and share the emotions of the watcher. Then we are with Paul Revere impatiently waiting, then furiously riding to spread the alarm. We have glimpses of him during the night as he gallops from village to village arousing the farmers. We are told briefly of the next day's battle, and as a climax we are made to feel the far-reaching significance of Paul Revere's ride.

Now it ought to be easy to see that "Paul Revere" might serve admirably as a subject for either painter or sculptor, but that in each case there would be severe limitations to what could be expressed. In the case of sculpture,* an equestrian statue is suggested embodying as far as possible the physical characteristics of the Revolutionary hero with appropriate costume, and a spirited horse. As for the story nothing can be actually told, although to those who know it the sculpture will stir many thoughts and associations. If the sculpture is successful it will give in its lines, masses and proportions a sense of the heroic. But the spectator should feel this whether or not he had ever heard of Paul Revere.

The painter who seeks a subject in this narrative may choose a dramatic moment when form and color in a group of figures with characteristic background will contribute pictorial elements of interest. For example he may show Paul Revere pulling up before the door of a village house. The whole family have rushed to the door in night attire. The village street is seen dimly in the moonlight with the fields beyond. Now in the hands of a painter of ability here are the materials for an heroic canvas.** The night garbs which at first thought might suggest something grotesque may be given almost the dignity of Greek drapery. Paul Revere and his horse are the center of interest. Moonlight bathes the landscape and contrasts with the warmer candlelight thrown from the open door. These are elements of form and color suited to the painter's language. But his picture when seen cannot possibly tell to us the story of Paul Revere. Yet it may be an admirable interpretation of a given moment of the story and if it is a worthy work of art it will be beautiful, inspiring and complete as a picture, regardless of the story of Paul Revere.

To Understand the Painter's Language Requires Study—
From the example just considered we can see that the painter, though less limited than the sculptor, is far more limited than the poet in the range of ideas that he can express in a given work of art. On the other hand those ideas which fall within the painter's field can be expressed so definitely that it might seem, at first thought, that anyone should be able to understand

*We are speaking of statues only, not of sculptural work in relief which permits the introduction of accessories.

**Cf. the mural painting *Paul Revere's Ride* by Robert Reid (American 1862—) in the State House, Boston, Mass.

a painting without training. This is true only to a very slight degree. To appreciate fully what a painter wishes to express requires an understanding of the language of painting that can come only after considerable study.

How to Study the Language of Painting—Since the language of the painter is a language of lines and of spots of paint, there is probably no better way of learning to understand it than through actual practice of the art, that is, through learning to draw and to paint under the instruction of a cultured artist. But this course for the majority is out of the question, since it requires considerable time and a certain degree of interest and aptitude that is not possessed by all who wish to become intelligent appreciators of pictures.

Verbal Analysis—For this majority, there are three ways left by which it is possible to learn to understand the painter's art.

(1) Through a systematic study, comparison, and discussion of selected examples, taking up in order the various topics—line, light and dark, drawing, color and composition. This may be called a literary method, or an analysis by words.

Graphic Analysis—(2) Through making sketches and tracings from master works to gain an understanding of the separate elements, line, light and dark, types of composition, etc. This may be called a graphic method of analysis. It is a method which should be followed from time to time in connection with the first. It does not require any ability to draw beyond the simplest, and yet it cannot fail to give a clearer understanding of the structure of a picture, than it is possible for one to gain through verbal expression alone.

Demonstrations by Painters—(3) Through seeing artists at work. More can be learned of certain phases of the painter's craft through seeing a demonstration than in any other way. It is assumed, of course, that the worker is a thoroughly trained artist whose methods of work are typical of the best practice. Doubtless occasionally a first class painter would be willing to give a demonstration in his studio to a class in art. It should often come within the range of the art teacher to illustrate certain points.

Art Appreciation Rather Than Art Criticism—The aim of the student should be to enlarge constantly his field of interest.

When a good picture which he has disliked or disregarded becomes interesting to him he should be glad that his mind has grown just so much. To appreciate a master work is to live over the mental experience of the artist who produced it. Artists are discoverers of beauties which are passed unheeded by the majority. So art appreciation is a means of enlarging our sympathies and appreciation of the world about us. Thus Corot (French, 1796-1875) showed us a fresh beauty in the trees. Millet (French, 1814-1875) gave a new meaning to the labors of the farm, Whistler (American, 1834-1903) revealed the colors of night, and Childe Hassam (American, 1859—) taught us to see the picturesque aspect of a wet day in the city.

If the study of art causes one to be unduly critical and fault finding, it is a sign that something is wrong in the viewpoint of the student, unless it be simply a phase of his growth where he is testing his own judgment. It is a good rule always to look for the good thing and so far as possible to shut one's eyes to the inferior things. Where you have a chance to choose, of course you will aim to choose the best, but pay no attention to the things that do not concern you, unless you are sure you can replace the inferior with the excellent. As a citizen you ought to be alive to all matters of civic improvement and help in every way to make your town more beautiful. But after you have done all in your power there will still remain much in the world that is not beautiful. I have read somewhere of a great architect who on the way between house and office passed twice each day a certain building. A friend asked him once if he didn't think that building a very poor piece of architecture. The architect answered, "I have never seen it."

The aim of our study should be to learn to see more beauty than we have seen before.

LINE

In considering painting, we must include its beginning as well as the more highly developed art of today; and the art of the east must receive some share of attention.

Drawing is so closely associated with painting that we shall consider the two as one. In fact, painting is drawing with the brush, with the problems of color generally added.

The Importance of Line—An outline is the simplest form of pictorial representation and is found in very early art, among



FIGURE 1

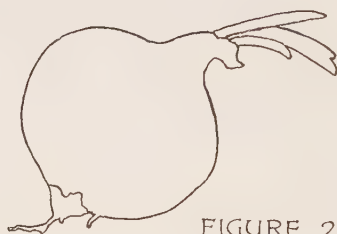


FIGURE 2



FIGURE 3

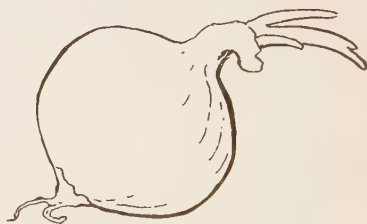


FIGURE 4

savages, and in the drawings of children. While we do not see nature defined by outlines, it seems perfectly reasonable in drawing to use them to define contours and shapes. Line has at all times been a fundamental consideration in painting. It is a convention by the use of which much can be said. In fact, many important examples of Greek art are primarily outlines. Chinese and Japanese art also furnish many fine examples of the masterly use of the line alone. The perfect understanding of line constituted the underlying strength of the Florentine School of Painters in the time of the Renaissance.

Kinds of Lines—Therefore since art in its simplest form deals primarily with outline, and line still forms a fundamental part of painting at its height, it is well that we should consider some of the possible kinds of line.

1. Lines can be straight or curved and the curves may vary greatly (Figure 1). If you trace an outline around the shadow of a profile of a person, cast sharply by bright sunlight on a wall, you will notice that there are practically no straight lines, although some approach straightness. The portrait is made up of curved lines varying in curvature and in length. These are the only variations of line which you have consciously aimed for. If your tracing is accurate you will have told certain truths.

2. Lines may vary in width. If in the tracing of the profile you have used an ordinary lead pencil or pen you will have a rather fine line. If you have used a medium sized brush and ink a wider outline has resulted. If you try both ways on separate drawings you will see how different are the effects resulting from the different widths of line. Now an outline may be varied in width throughout so as to suggest roundness, and to a certain extent texture (Figures 2-4).

3. Lines may be lighter or darker (Figure 5). The effect of a drawing is distinctly different according to the degree of darkness of the outline. In the case of pencil or charcoal much of the beauty and expressiveness of a line may come from a skillful variation in its darkness, obtained by greater or less pressure upon the point by the hand of the artist. Whatever medium is used, a certain variety in the value of the lines is often an important factor in the result sought.

4. Lines may be smooth or rough. In the suggestion of texture this distinction is one of importance. A very simple



FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8

example is given in the illustration of the egg and the lemon (Figure 6).

5. An artist may draw firmly and with finality or with a sketchy tentative touch. Each may serve a distinct purpose in the same work of art. For example in a simple landscape with house and trees and cloud, it is easy to see that firm and decisive lines in the house would indicate its stationary character, a less defined, more broken outline might suggest the contour of the trees blown by the breeze, while in the case of the clouds, very rigid lines would certainly fail to suggest those ever-changing forms (Figure 7).

Thus we see that when we consider lines as to their varieties, there is a considerable range possible; and that by means of this range of lines forms can be represented to give different pictorial effects and to a certain extent to suggest roundness, texture and other individual characteristics.

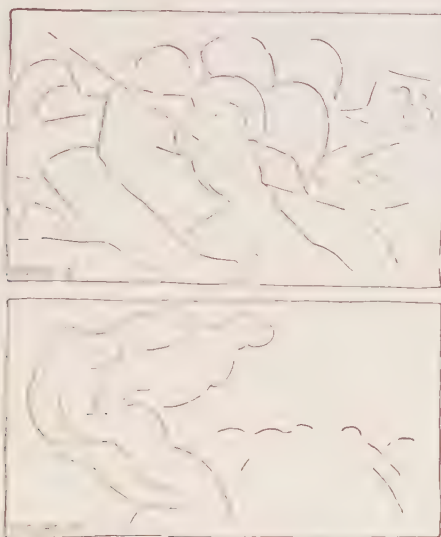
Line May Suggest Movement—Now because we associate with lines in certain positions and in certain combinations the ideas of various movements, it is possible through the composition or putting together of lines to suggest movement more or less vividly. This can be shown by skeleton sketches of running human figures, the slanting lines of the bodies and the positions of the legs conveying at once to our minds the idea of rapid movement. This idea is enhanced by the varied positions of the figures which taken together reinforce the idea of speed. Just how successful at different periods the arts of drawing and painting have been in suggesting motion is perhaps an open question. How each observer answers that question depends in part upon the quality of his own imagination and how far it is stimulated by lines of certain kinds and certain relative positions. Look, for example, at the drawing by John Flaxman (English, 1755-1826) called the Brazen Age from his famous illustrations to *Hesiod*. While of course there is no question that violent action was intended by the artist, it is doubtful if a very vivid sense of motion will come at once to your mind. Flaxman ranks high as a master of line, but his technique is so different from that of the modern illustrator that this reason alone may stand in the way of your appreciating the picture at once. Now compare with this picture the floating movement expressed by the sinuous lines of the composition called *Pleiades* by the same artist. A comparison of the tracings (Figures 9-10)



THE BRAZEN AGE
BY JOHN FLAXMAN.



PLEIADES
BY JOHN FLAXMAN.



in which some of the more important lines have been selected, should help to an appreciation of the great contrast in the line composition in these two drawings. It will be seen that they have power to awake the imagination to a sense of movement, just as soon as you begin to comprehend the artist's language. It may be true that some other lines would affect you more strongly. It would be well for you now to look through some of the best illustrated magazines and papers of today with the purpose of studying the expression of movement by means of skillful arrangement of lines. Some of the modern illustrators attempt very difficult problems of this kind.

Decide for yourself how far each of several selected examples is successful in suggesting movement by means of line. You will find that other factors besides line may contribute to this suggestion, but for the present consider only the factor of line.

Lines Suggest Ideas of Repose—Lines at angles generally suggest unrest, and different curves may suggest different movements as shown in the tracings. It should be equally evident that vertical lines suggest as a rule the ideas connected with stability and immobility, and horizontal lines connect themselves in the mind with the recumbent position, the position of sleep. In the



PORTRAIT BY HOLBEIN
SHOWING HIS MASTERLY USE OF LINE.

landscape (Figure 11), all the lines are horizontal except those of the mountains (which balance each other and so offset any ideas of movement), and the lines of the river and cloud. These suggest just enough movement to give interest to the composition.

Lines Suggest Moods and Arouse Emotions—Through association of ideas, lines may also suggest moods and arouse emotions. For example *The Angelus* by Millet, shorn of its light and shade, and of color, still gives by its main lines the mood of evening, the idea of humility and the religious spirit of the occasion. The nearly horizontal and parallel lines of the fields suggest by their repetition and monotony something of the quiet, almost drowsy spirit of the time of day. The generally vertical figures with the distinct lines of the bowed head and shoulders of the woman and also the lines of her arms convey to the mind distinctly the mood of prayer in which the man and woman join.

The moods of sorrow and mourning are aroused by the lines of bowed figures; of joy and exaltation by the lines of upward radial character, the lines which one sees when a boy throws up his cap, or a crowd waves handkerchiefs and cheers. Arthur Rackham (English contemporary) has used lines very eloquently in his illustrations. Undine for example contains an illustration of "Bertolda in the Black Valley" where the claw-like line repeated in the delineation of dead branches and echoed throughout the picture's details helps powerfully to suggest the fear that clutches at the girl's heart.

In the picture of Undine walking by the water, every erratic line of hair, drapery, trees and water helps to produce the idea of a whimsical irresponsible creature, the mood of the water sprite.

Individuality in the Lines of Different Artists—It is just as easy to recognize the works of an artist by the individuality expressed in his lines, as it is to learn to know an individual's handwriting or to recognize the sound of a person's voice. The individuality and distinction of line in the works of such an artist as Whistler form a very great part of their artistic value. This is especially true of his remarkable etchings.

Holbein's Line—It would hardly be profitable to attempt any extended analysis of the qualities of line characteristic of different artists. Indeed it would be almost as hopeless to try to characterize them fully as it would to attempt a satisfactory descrip-



FIGURE FROM SISTINE CHAPEL
BY MICHEL-ANGELO.

tion of an individual's speaking voice. We can best learn to appreciate quality of line by looking again and again at the work of some of the great artists. Take for example the famous portrait drawings of Hans Holbein (German, 1497-1543) which can be studied pretty well in the reproductions. At once you feel an intimacy of draughtsmanship which carries with it the conviction that a sincere portrait has been given. But there is a charm in the exact thin lines of Holbein which is more easily felt than described. Even though Holbein's subjects were usually people of distinction, and his portraits therefore interesting as portraits, yet it is safe to say that the great interest in Holbein's drawings lies in their beauty of draughtsmanship. The distinction of Holbein's line has made his drawings artistic treasures for all time.

Michel-angelo's Use of Line—If we consider the work of Michel-angelo (Italian, 1475-1564) we should have no difficulty in appreciating something of the incomparable power of his lines. Tremendous strength and eloquence of line are in evidence in his drawings and in his paintings command no less attention. In the figures of the Sistine Chapel our eyes are forced to follow the mighty sweeping contours of draperies, bodies, arms and legs. In the power of the outlines lies a great part of the irresistible power of appeal which these God-like figures possess. The genius of Michel-angelo has expressed itself in every line he has left, and it would be hopeless and ridiculous for anyone to expect to imitate the individual character of Michel-angelo's lines, though much can be learned by copying his work, or even by tracing the main lines of composition in one of his figures in order clearly to realize the line as distinct from the light and shade effect.

The drawings and paintings of Ingres (French, 1780-1867) offer an opportunity for the study of line by a master whose distinction is undisputed. A comparison of his portrait drawings with those of Holbein would be helpful in emphasizing the idea of individuality as expressed by line. How different are the qualities of line in the work of these two artists, and yet both use lines that are fine and precise.

Altogether different, yet suited perfectly to his subjects are the lines of Millet. They are simple, rugged, almost rough at times; they are charged always with meaning, and with the great personality of the man.



MADONNA BY BOTICELLI.

Doubtless many of you now recognize the work of certain magazine illustrators at a glance. In some cases perhaps you have learned to recognize them by their individual qualities of line. You ought to be able to enjoy the line qualities of such men as Arthur Rackham, Charles Dana Gibson, Albert Sterner and Arthur Keller. Be sure you understand just what this means. It means that your eyes follow the lines and contours with a pleasure just as keen as is felt by a trained ear when it follows the rich modulations of a fine voice. Be sure that you can separate in your mind pretty sharply the pleasure that the lines themselves give, from the pleasure that you take from other qualities, especially the grace and beauty of the subjects depicted. Referring again to Holbein, we should be able to appreciate his line expression just as keenly in a portrait of an ugly face as in a portrait of a beautiful one. This leads to the last point to be discussed here in connection with the subject of line.

Beauty of Line Apart From What Is Represented—In the past few years the interest in Japanese prints has become rather widespread. A large number of people of good taste have found them very pleasing decorations for certain rooms. Yet these admirers of Japanese prints, in many instances, are unacquainted with the subjects depicted, and they would not pretend to think the faces or figures other than grotesque. Those who have not studied art often wonder why these strange and ugly subjects find a place in the homes of their art loving friends. The answer to this question is perfectly simple. The Japanese print designers were masters of line, of dark and light, and of color composition. In short, they were artists of remarkably fine feeling, and the lines in themselves are beautiful to look at, beautiful considered as individual lines, and beautiful in their composition. This brief reference is made to Japanese prints because they are more widely known than are Japanese paintings, which also embody to a marked degree the quality of beauty of line which in itself is satisfying apart from what is represented. The lines themselves are decorative and beautiful as an abstract arrangement. We may admire them in the same way that we admire a fine design which is not pictorial.

In looking at the work of certain European and American painters, it is necessary to regard the line arrangements from this purely abstract standpoint if we would appreciate their pictures fully. Botticelli (Italian, 1444-1510) for example gives

us draperies arranged in impossible folds, but none the less charming from the "decorative" point of view. Unless we appreciate arrangements of line for their own sake we shall miss a great deal of the beauty in Whistler's work. It would be easy to name many other artists whose work is distinguished by decorative qualities of line. Indeed we might say that all the best work possesses a beauty of linear design to a greater or lesser degree. In some work, however, it is the chief distinguishing quality.

Summary of the Topic—Under the topic of line the attempt has been made to show first the principal varieties of line possible for anyone to draw; as straight, or curved in various ways; of various widths; of differing degrees of darkness; smooth or rough; firm or sketchy. Lines may vary also in length and position. With these possibilities of line, form and texture can be expressed; and because of association, movement can also be suggested, and emotions can be aroused.

An artist expresses his individuality in the quality of his lines and this quality while difficult to analyze is an important quality.

The composition and character of line in some works of art is so distinctly the chief aim, that we must even consider the lines somewhat apart from what they represent, and regard them as a design is regarded.

Suggestions for Sketches and Tracings—1. Illustrate the various kinds of lines.

2. Make tracings from some masterpieces of composition where line expresses repose, and where it expresses different kinds of movement.

3. Make tracings from compositions where line expresses distinct emotions, e. g., Millet's *Angelus*.

4. Make a tracing from a composition illustrating the decorative use of line.

LIGHT AND DARK (VALUES)

A. Use in Drawings to Give to Outlines a Sense of Reality; to Suggest Color, Distance, Etc., and as an Element of Beauty

The Silhouette—Dark on Light—The simplest kind of representation has already been referred to as an outline such as one can trace around the shadow of an object. It is a very natural

step "to fill in" that outline with a flat wash of black, gray, or color. The outline thus becomes what is known as a silhouette. True, the term is applied strictly to portraits in black, but it has been extended to include any drawing in one degree or "value" of dark on a lighter background.

Light on Dark—We will extend the meaning a bit further and speak of a white or light silhouette, meaning a perfectly flat one-value drawing against a darker background.

Examples in Historic Art—Perhaps the finest examples of silhouette art, both in dark on light and in light on dark, are to be found among the many large collections of Greek vases.

Japanese art also furnishes excellent examples of the powerful use of the silhouette and several modern French artists, notably "Caran d'Ache" and Henri Riviere, have worked out wonderfully beautiful and impressive compositions in one value against a background.

Nature's One Value Effects—At evening, the trees against the sky, or a line of figures or animals on the crest of a hill give us impressive illustrations of the silhouette in nature. Dull indeed must the person be who has not been impressed by the beauty of the silhouette of some skyline of town or city or architectural mass. This time of simplicity, when details are lost and the mass is therefore accentuated, has been the inspiration of many artists. Moreover, it will be found that a fine silhouette is fundamental in art of any degree of elaboration, therefore let us look with respect on those artists who have glorified the silhouette.

Limitations of the Silhouette—While with one value it is possible to represent much of power, grace and beauty both of action and of repose, and while the method is suited to the decoration of a surface, yet it fails to suggest varieties of color; it cannot go far in suggesting perspective; and obviously it is beyond its scope to express any of the many beauties that depend on gradations of values. The limitations of the silhouette should be clearly understood, and then we can appreciate the more fully such beautiful examples as have been referred to.

The Use of Several Values of Monochrome—It is assumed that all who have reached the high school have become familiar with the scale of five "values," white, light gray, middle gray, dark gray and black. Of course it is possible to make a scale

where the contrasts are less, but still equal, and thus extend the scale very greatly. The next logical step beyond the silhouette which we have discussed, is the introduction of several values from the scale of grays. By this means a suggestion of various colors can be given. This method was employed in early art, and by the Japanese in a masterly way. It is also employed by several modern illustrators. It is what may be called a decorative method of employing lighter and darker values. For example let us imagine the figure of a child painted in five values, including the background.

Values May Suggest Colors—The background is middle gray; the hair and shoes are dark gray; the face and hands are light gray; the dress and stockings are white; while certain ribbons are painted black. Now the amount of each value used and its shape and place in the picture are very important factors in the success or failure of the picture, considered as a work of art. The various values in some instances (for example, in face and hands) definitely suggest color. In other cases we are left free to choose what color if any was translated into a given value.

A Painting Having Fine Color Values Reproduces Well in Monochrome—"A fine feeling for values" is a phrase that is sometimes heard in reference to such work as that of Mr. Whistler. If you look at "The Mother" in any good photographic reproduction, you will see how suggestive of color the various values are, and also how wonderfully they are arranged or distributed throughout the picture. In the original painting the artist displayed his ability to strike the values of each subtle note of color with a wonderful sense of truth on the one hand, and a masterly sense of composition on the other. Light and shade is introduced but it is entirely subordinate to dark and light contrasts arising from variations of color values in the different objects and surfaces.

Values May Express Distance—On a hazy or foggy day, or in a city with a smoky atmosphere, it is easy to see how figures in dark clothing appear a lighter and lighter gray as they go further and further away down the street. To mention another simple example, probably on a dull foggy day you have all looked out on the landscape when trees or buildings appeared to be in two or three distinct values of gray. There are days when the colors almost disappear in the mantle of fog, and near objects

appear a flat gray, objects in the middle distance a lighter gray, and then a fainter gray still in the distance. These examples are striking ones in which almost everyone has recognized variety of value resulting from the atmosphere in which everything is placed, and the distance at which an object is seen. The examples, however, are crude. Distances need not be great to change the value of a mass in a picture, and the weather conditions need not be unusual. The important point to be recognized is that distance affects the values of color masses, making them appear lighter or darker according to circumstances. This is a second cause, then, of variety of value in nature, the first being, as already stated, actual difference in the darkness of various colors. Corot's landscapes, in the photographic reproductions as well as in the originals, illustrate excellently the beautiful variations of value, which give such wonderful impressions of distance.

The beauty which comes from the subtle relation of values in nature is a beauty which the painter must utilize in composing his pictures; a fine sense of values is a necessary part of the equipment of a modern artist. Velasquez (Spain, 1599-1660) was perhaps the first great painter to appreciate the question of values fully.

But a study of the reproductions of the paintings of Giotto (Italy, 1267-1337) will show that he had a fine feeling for the arrangement of color values in a composition.

B. LIGHT AND SHADE

Light and Shade Is Required to Represent the Third Dimension—So far the use of different values of gray or of color has been referred to without any reference to light and shade. Much excellent art has been produced without the representation of the third dimension, that is without light and shade. This is true of the majority of Japanese prints. It is also true of some of the modern illustrations, which practically disregard the matter of solidity, and represent objects as if they were without thickness. So accustomed have we become to such pictures that we do not miss the light and shade, and there is often a gain in interest from the simplicity of effect. But in serious modern painting we expect to find some adequate suggestion of the solidity of objects, and this can be given only through the representation of light and shade.

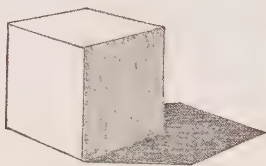


FIGURE · 12

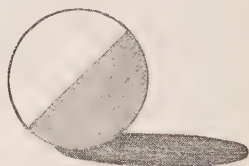


FIGURE · 15

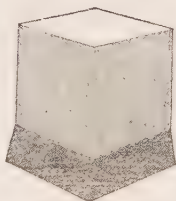


FIGURE · 13

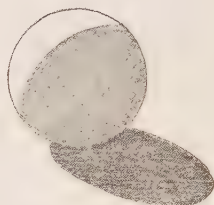


FIGURE · 16

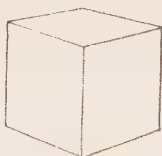


FIGURE · 14

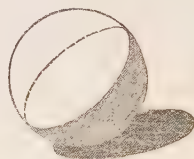


FIGURE · 17

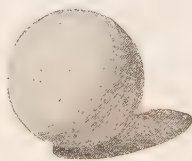


FIGURE · 18

Principles Explained—The Cube—Perhaps the simplest way to illustrate the principles of light and shade is to experiment with a cube or white box placed near a window, the light from all other windows being shut out. First, place the cube so that the top and two sides are seen and so that the light comes from the left downwards at 45 degrees. The effect is illustrated in Figure 12. Here we see that the left side and top receive the light, while the right side is turned away from the light and is therefore in shadow. We also notice the cast shadow at the right, which is thrown by the cube on the horizontal surface.

In Figure 13 the cube remains in the same relation to the window, but we have changed our place to one where we face the window. We now see the two sides of the cube which are turned away from the light, and the cast shadow extending towards us. We see the top in light as before.

Figure 14 shows the same cube unchanged in position, while we look at it from a point where we can see only the three surfaces that receive the light. These three figures are only diagrammatic and therefore the values are represented flat. Nature generally shows very subtle gradations in her masses of light, shade, and cast shadow, and such gradations are a matter which concerns painting, but just here we will consider the principles in the simplest way. What is true of the effect of light on a cube is true in a general way for all rectilinear solids, which of course include most of the forms found in architecture and many found in furniture. So the principles observed in the cube and illustrated in these figures should help in appreciating the light and shade of a city street or of the interior of a room.

The Sphere—Next, let us experiment with a sphere, placing it in the same relation to the window as we did the cube and looking at it first so that the light comes from the left and downward as before. Figure 15 shows one-half of the visible side of the sphere in light and one-half in shadow. Figure 16 shows how the effect will change if we move around so that more of the shade side is seen. In Figure 17 we have moved around so that more of the light side is seen. The dotted lines indicate the dividing line of light and shade on the invisible side. Now of course you cannot see any such sharp lines of demarkation in the object as these figures show. Between the light and the shade is a graded area of half light. There is really only one point on the surface of the sphere that is in full light. This is

called the high-light. Every other part is illuminated in a less degree. The shade side is modified by reflected light, that is, light thrown back to the sphere from surrounding objects. Thus the effect becomes more like Figure 18. We have now illustrated these terms: light, shade, half light and cast shadow; high light and reflected light. The observations which we have made on the sphere are true of the many objects of nature and of manufacture which have curved surfaces. A portrait painter must observe the principles of light and shade with the utmost care and skill if he wishes to attain to solidity of effect.

Suggested Study of Types of Lighting—It would be well for you to compare several modern portraits and several by such masters as Raphael (Italian, 1483-1520), Titian (Italian, 1477-1576), Rubens (Flemish, 1577-1640), Van Dyck (Flemish, 1599-1641), Velasquez (Spanish, 1599-1660), Reynolds (English, 1723-1792), and Raeburn (Scottish, 1756-1823). Notice what kind of lighting each artist preferred. See what pictures were painted in a side light; which ones in a light coming from above (a studio light); which in full light, which in shadow, etc. Some painters prefer a diffused light, like the light out-of-doors on a gray day, or light sifting through an extended ground glass skylight. Decide which effects particularly interest you. What is lost or what is gained by each type of lighting?

The Emotional Use of Light and Shade—But the use of light and shade simply to give the effect of solidity or roundness is by no means its only use in art. In the hands of a master, light and shade is one of the most powerful means of expressing emotion. One example of this emotional use of light and shade which is familiar to many is the painting of the "Nativity" by Correggio (Italian, 1494-1534). Rembrandt (Dutch, 1606-1669) was peculiarly a painter who used light and shade in a powerfully emotional way. His favorite method of lighting was characteristic of his work. A small area of light surrounded by gloom is a typical arrangement with him. Many of his portraits exemplify this method, and also his famous composition generally known as "The Night Watch." With light and shade Rembrandt was able to produce a wonderful feeling of mystery and charm regardless of his subjects which in some instances were commonplace.

Summary of the Topic—We have now touched upon the principal uses of values as a part of the language of drawing and

painting. They were discussed under two heads, first as a means of expressing things other than light and shade, and second as a means of expressing light and shade.

Under the first head we found that two values (including background) can be used effectively in light or dark, massed effects. More values can be definitely employed in a monochrome painting to suggest colors and to give a pleasing pattern of grays. Rightly employed flat masses of definite value will also express distance and atmospheric effect. All these matters are considered by the painter who also uses values as a means of expressing effects of light and shade.

Under the second head, light and shade, it was shown how solidity could be expressed by working according to simple principles. Lastly, light and shade was considered as a means of expressing emotion.

Suggestions for Graphic Analysis—Make tracings or sketches from good examples to illustrate the following:

1. Silhouettes of two types, that is dark against light and light against dark.
2. The use of three values to suggest color.
3. The use of three values to express distance.
4. A simple object with light, shade and cast shadow.

DRAWING AND ALLIED TOPICS

A. DRAWING

What Is Meant by "Good Drawing"—It is not easy to express in words the meaning that the phrase "good drawing" conveys to a trained artist or critic. To say that Millet was a great draughtsman of the figure is not only true but it is also high praise if the full meaning of the terms drawing and draughtsmanship are understood.

Let us try to get at the significance of the word "drawing" when it is used to indicate a significant product of pencil or brush. Let us suppose that one unskilled in art traces carefully around a shadow cast on the wall, by a head, and that the result is a fairly accurate outline of the profile. The question arises, is this a good drawing, and if not why not? The answer to this question lies in the fact that a good drawing always involves a conscious selection of important lines, and conscious thought in regard to the quality and significance of every stroke. Good drawing must be more than careful mapping of outlines in a mechanical way. A rough sketch by a master like Millet suggesting life, character and action simply but powerfully (as his rough sketches always do) is a good drawing in the best sense of the word. Good drawing is the placing of lines or masses in the right positions to express what is in the artist's mind.

Academic Standards—The usual training in drawing in the European and American art schools has consisted in long practice in drawing from the model. Oftentimes the student works each half day for a week with the model posing, and the result which he attains when he is successful, is a pretty accurate portrait, "well constructed" and "well handled." To acquire the ability to draw well in this "academic" sense of the word is no small accomplishment. It means that the student has learned to see proportions and to record them with truth; that he has learned the anatomy of bones and muscles, so that he knows just what he is representing by every line and touch; that he recognizes and appreciates subtle differences of value; and that he has learned to use his materials with skill. Only a few of all those who enter the art schools attain to mastery in academic drawing. Such French painters as Gerome (1824-1904) stand out

as supreme in good drawing in the sense that it is, academically speaking, perfect. It is excellent in craftsmanship, shows a perfect understanding of the figure, and is refined at the same time that it is realistic.

A Higher Type of Drawing—But the drawing of Millet, as shown in any of his studies of peasants at work, is of a higher order. It is more concerned with the expression of character than with the literal facts. The handling is often rough and unfinished, but strong and in harmony with the homespun men and women which he draws. While we are impressed by the firm construction of his figures, yet this construction is shown often by an omission of details and an emphasis of some significant line. Those who have had the power to draw well in this larger sense are among the great names in art. Greatest among all is Michel-angelo, a giant in draughtsmanship.

The Evolution of Drawing—Early painting was not worked out from the model. The painters were simply skilled decorators who had learned to draw certain types. They drew these in the main as they were taught by their masters, varying the poses of figures and the types of faces scarcely any from generation to generation. Cimabue (Italy, 1240-1302) was one of the first of the Italians to improve his types and make them more life-like. His pupil Giotto (1267-1337) made a great advance in draughtsmanship. Giotto's figures were far more human, more dramatic, more true than those of his master or of his other predecessors. It is an interesting study to compare the drawing in the works of the followers of Cimabue and Giotto up to the time of the greatest masters of Italian painting, Raphael, Michel-angelo, Leonardo de Vinci (Italian, 1452-1519), Titian, etc. This can be done in any good collection of photographic reproductions. It is not hard to see how the knowledge of the figure grew through scientific study of nature and of the master works of the Greek sculptors. Finally after the greatest of the Italian painters came a period when the accumulated knowledge and technical skill was all that was left, and the painters produced work skillfull in its realism but lacking in real power.

Drawing in Landscape—We must recognize the fact that good landscape art also involves good drawing. Trees and clouds and earth cannot be drawn without consideration for their characteristic constructions. Moreover, there is a complexity in land-

scape which requires a far greater degree of simplification than is required in figure painting. Clouds are constantly changing their forms. They must be drawn from memory after keen observation of typical shapes. The leaves of trees and the grass and vegetation of the fields cannot be drawn literally. The landscape painter who knows what drawing means, is skilled in selecting the few lines of cloud, or tree or hillside which will express the more important truth of form. Corot was a master in drawing trees so as to express just the character of growth with which he was impressed.

Decorative Drawing—The drawing of such artists as Botticelli or Burne-Jones (English, 1833-1898) must be judged from a different standpoint than has been considered in this section. In the section on Line, the use of line for its decorative quality alone was mentioned and Botticelli was named as an example of an artist whose lines must be judged apart from what was represented. In his figure drawing Botticelli often departs from anatomical truth and it would be hard to justify his drawing from the standpoint of representation. Feet, hands and heads may look queer in the way that they are attached, and hair and drapery would often have to be accepted as such by courtesy. Yet judged as a creator of graceful forms Botticelli takes his place as a draughtsman of a high order.

The drawing found in the paintings of Burne-Jones must be judged not with reference to its realistic success, but as a means of expressing his fanciful ideas. The conventionalities found in the drawing of such artists are not to be criticised because of their departure from nature, but rather they must be accepted as something intentionally adopted by the artist because suited to the expression of his ideas.

B. PERSPECTIVE

Linear Perspective—It ought to be hardly necessary here to dwell upon the matter of perspective as the term is usually used. In the drawing classes it is not usually a popular topic, probably because it requires a good deal of care and patience to make a perfectly correct drawing even of a common object like a book. Probably, however, most of you have at some time in your lives been overcome with wonder as you watched the effect of increasing size in an on-coming train, or watched some other ex-

ample just as familiar which vividly illustrates the principle of the apparent decrease of size in objects as they move away into the distance.

Probably, too, at some time in your lives you have wondered at the fact that a photograph or a drawing can give the effect so vividly of a vista of perhaps miles, for example, looking down a long avenue in a great city or park. Recently a venerable and highly educated old gentleman who had, however, never studied drawing, showed me a picture of the interior of a large room and expressed a child-like wonder that "you seemed to be able to look forty feet into the room!" He asked me how such wonders could be accomplished on a flat piece of paper. I was reminded of the enthusiasm with which Paolo Uccello (Italy, 1397—) pursued the study of perspective when the science was new to Italy, and how he even painted pictures apparently simply to bring in problems in perspective. This is not the place to enter into the science of linear perspective, and probably most of you think that you understand what perspective is. Even if you cannot always make a correct drawing, you probably would notice any glaring perspective errors in the work of a painter.

Aerial Perspective—But there are other changes than those of size, which distance makes in the appearance of objects. These changes were not taken into consideration by Uccello nor his followers down to very recent times. Figures and buildings in the distance were made smaller, that is to say, they were correctly represented so far as linear perspective could assist, but they were often drawn with as much detail as if they were supposed to be near at hand. The distances of the old masters remind one of distant objects seen through a telescope, so sharply are they defined.

Details Disappear in the Distance—Now a modern painter, for example, the American, Hassam (1859—), in painting figures in the distance represents them with less detail than he puts into nearer figures. The same thing would be true in the representation of any other objects; but in the case of figures which are supposed to be walking, there is an added reason for suppressing sharp contours and details, since a moving object presents a somewhat blurred image to the eye.

Effect on Values—In discussing values reference was made to the changes which distance makes in the apparent darkness of objects.

Effect on Color—Colored objects generally appear grayer in the distance and sometimes lose all trace of their actual hues. For example, green trees may appear gray or purple under certain conditions of atmosphere. Regard for aerial perspective or the changes of effect for which the atmosphere is responsible belongs to the art of comparatively recent years. It has developed with the modern schools of landscape painting. Beautiful effects of aerial perspective were attained by painters of the Barbizon School (Rousseau, Corot, Millet, Diaz and others) and those who followed. The so-called Impressionists contributed something, and among the contemporary landscape painters are several whose works are remarkable for outdoor atmospheric effect.

C. TEXTURES

The word texture is used in the discussion of painting to signify the distinguishing appearance of any surface which the painter undertakes to represent. There is a vast difference in the degree of skill displayed by able painters in the matter of representing textures. It may often be true that a painting possessing really great qualities is not particularly good in its textures. On the other hand there have been painters whose chief distinction lay in their ability to paint textures exquisitely. Nevertheless, the adequate and beautiful rendering of textures cannot be disregarded in the appreciation of painting, whether we consider it as a major or a minor quality.

Textures in an Indoor Subject—The painters of the Dutch school who were known as the "Little Dutchmen" are noted for wonderful texture painting. Terburg (1617-1681) and Metsu (1630-1667) are good subjects for study. Take for example "The Apple Parer," which is typical of Terburg. Even in a reproduction you are at once conscious of the beauty of the different materials and surfaces portrayed. You know that each would feel different to the touch of the hand. How characteristic are the surfaces of the china dish, the apples and the paring, the candlestick and the candle, as well as the various textures in the clothing of the lady, the hat of the child, and the faces and hands! The question arises, how is texture attained? It is partly a question of good drawing, especially as it concerns the exact shapes, of lights, shades, high lights and reflected lights; it is

partly a question of true value relations; and it is also a question of the way the paint is put on or the "handling." To appreciate good texture painting fully, you should be able to study some fine examples in the originals. This can be done in the art museums. Among our American painters who have excelled in this matter are Wm. M. Chase (1849—) in his still-life groups. He is especially fond of giving us the sheen of fish and the glint of metal.

Texture in Landscape Painting—In landscape painting, textures are one important factor in success. Some artists cannot paint an atmospheric sky or clouds that look of the right texture. Water—still water, or water of a flowing river, or of a rippling brook, or water stirred by the wind—present difficult problems in texture. Besides these are many others hardly less difficult, for example a sandy road, or a traveled country road of heavy soil; pasture land with rock and grass, bush and semi-bare ground; and trees with their greatly varying foliage and bark. Just to name these few examples should cause you to look with enquiring eyes to see how far the different landscape painters concern themselves with textures. The answer is not an easy one, for the landscape painters have other, and perhaps more important problems in mind; but a study of landscape art for the rendering of textures will be worth your while.

Summary: Drawing, Perspective, Textures—The topics drawing, perspective and textures have been grouped because all may be thought of as primarily connected with good draughtsmanship; that is, the placing of the right line or spot of value in exactly the right place.

The first important point made was that significant drawing is greater than merely correct drawing, although correct drawing in the scholarly sense is no common or small accomplishment. Highly significant drawing is concerned with the expression of an idea and such drawing eliminates certain facts and accentuates others.

The drawing of some painters must be considered from the standpoint of design rather than from the standpoint of realism. In other words their drawings are purposely made untrue to nature, for the sake of creating a fanciful impression.

The phenomena of linear perspective are more or less familiar to most people in these days of the camera, but the effects of aerial perspective are not so generally appreciated. In painting, most of them were disregarded until the nineteenth century.

The skillful representation of textures applies to all subjects, indoor and outdoor. While it may not be one of the great aims of art, it is a matter that cannot be disregarded in the study of paintings.

COLOR

What Is Beautiful Color?—I remember vividly a lesson in seeing color which I received from a cultivated Japanese collector of art objects. I was familiar at that time with the Japanese pottery of lively hues which has been made in such quantities for the American markets, but I had not had my attention called to the fine old pieces, found only in choice collections. My Japanese friend took me into a room containing many rare forms and I was surprised at the dull browns and grays that predominated. But my surprise was greater when the collector took up what seemed to me a dull brown jar and holding it near the window said, "Isn't this one full of exquisite color!" From that time I took a new interest in searching for color, and I soon began to appreciate better what the Japanese gentleman saw to give pleasure to his color sense. My color education received another impetus at about that time when I talked with a landscape painter about outdoor sketching in the autumn. "November is a better month for color than October," he said, "because the colors then are toned down to where they are paintable." After that I came to the conclusion that nature might have great charm of color in her less brilliant moods. If we stop to use our eye and to consider, we shall probably conclude that fields, woods and skies, beasts, birds and flowers are not generally brilliant in color. Nature uses a brilliant note here and there amid much that is not pronounced in hue. In fact the more we use our eyes, the more we shall see how seldom occur large masses of strong color, and the more we shall see that what we had passed as brown or gray is full of delicate color suggestions. Those who are artistically uneducated fail to see color except in its cruder notes, and so they cannot possibly understand why anyone should admire color where no color is to them apparent. It takes cultivation of the color sense to see the beautiful grayed colors in a landscape by Corot or in one of Whistler's extraordinary "arrangements," as he called many of his paintings.

It by no means follows from what has been said that all the dull colored paintings are good, or that a rug with faded

colors is necessarily harmonious. But the lesson should be clear that the first step toward color appreciation is learning to see colors in their less pronounced notes.

When Bright Colors Are Satisfactory—At the present time there is a fashion for using brilliant notes of color in combination, both in pictorial work and in design. Where these are most satisfactory they are generally combined with a generous amount of neutral surface, that is white, black, gray or all three. It may be pretty safely asserted that the human eye does not take the highest kind of satisfaction in the contemplation of large masses of bright rainbow colors unless they are balanced by neutrals or by neutralized notes of color. This point is illustrated by certain of the mediaeval stained glass windows, which though composed of brilliant hues, appear only like jewels of bright color in the midst of the gloom of the vast cathedral interiors.

Harmony—The word harmony and harmonious are much used in speaking of color, and sometimes they are used with vague meaning. Perhaps the best definition of harmony is one which implies that where there is harmony there must be a common factor present throughout the work. For example, we may have a harmony in yellow, and yet introduce all the colors of the rainbow into a composition. Each of these colors, however, must be modified more or less by the harmonizing color, yellow. This effect may be seen often in nature when all the landscape is bathed in a warm glow from the west, in the late afternoon. On a gray, foggy day all colors are modified or harmonized by the gray mantle of the atmosphere. Harmony of color in the true sense implies that all the colors in the composition have been brought into relation through the domination of one color or of a neutral which has been used to modify all.

Opposite Colors—If you fix your eyes on a spot of vermillion for a short time and then look at a white surface, you will see a spot of very light bluish green. This color seen is the opposite or complementary color of red. Every warm color has its opposite cool color, and opposite colors used side by side tend to enhance the effect of each other. What has been said on the subject of harmony, however, remains true, even when opposites are used.

While these general statements cannot go far in suggesting how to combine colors (which is the study of a lifetime) they

ought to be helpful to those who determine to look for color and to appreciate more intelligently the art of the painter.

Color May Express a Mood—If we turn the pages of Boutet de Monvel's (France, modern) color compositions illustrating the story of Joan of Arc,* we can scarcely fail to appreciate how remarkably the color schemes in certain of the compositions express the mood of the picture. What a contrast of mood is there between the cool colors of the pastoral scene where Joan tends her flocks, and the hot hues of the battle scene. The color in the latter is sanguinary throughout the picture, and speaks of bloodshed before we have begun to study the composition. While not all painters have utilized the possibilities of emotional appeal which colors possess, yet you will find that the great painters invariably use color schemes which reinforce their ideas. Millet's and Corot's paintings are good material for study in this connection. We should expect to find rich and sombre color schemes in Millet's paintings for his themes are serious; and Corot's happy mood is well expressed by his silvery colorful grays.

Local Color and How It Is Modified—If you are asked to name the color of a daffodil, you at once answer "yellow." You have named its local or actual color. We are generally thinking and speaking of local colors when we use color terms, but the modern painter knows that local colors undergo many changes of color effect according to circumstances.

First of all there is the effect produced by light and shade. Look carefully at the folds of some drapery which receives a strong side light. Notice the differences between the color notes of the light parts, of the parts in half light, and the parts in shade. Then study drapery as it is painted by different painters of the art galleries. You will probably be surprised to find so little of what can be considered the local colors in these pictures, so great is the modification produced in local colors by light and shade.

That distance modifies local colors has been mentioned in another connection. Probably most of you have seen distant hills which appeared blue or purple, yet if you stopped to think you knew that they were covered with green trees. The distance had made green appear blue. Not quite so far off the green trees may look a bluish green. The trained eye which notes very

*Published by the Century Company.

slight changes of color, will see that even a slight distance will effect an apparent change in local colors.

Another cause of change of color from its local character is reflection. You have all tried holding a buttercup under the chin of a playmate "to see if she loves butter." Generally the yellow is vividly reflected so that the chin looks yellow indeed. In the same way all colors are reflected more or less on to adjacent surfaces, and so for example, a yellow object may be made to appear a greenish yellow or a green, by the reflection from a green or blue surface.

Color in Decorative Art—While in general all these modifying influences are considered in modern art, decorative art is more or less an exception. The art of the mural painter, aiming chiefly to enrich a flat surface, does not necessarily call for the introduction of light and shade in a realistic way, nor for other realistic effects of color. The paintings of Puvis de Chavannes (French, 1824-1898) are comparatively flat in their color and value treatment, suggesting somewhat the work of Giotto. Puvis deliberately returned to a more primitive kind of painting, believing that the flat treatment was more in harmony with wall decoration than a more modern and realistic treatment.

Color Used to Express Light—In some modern outdoor paintings, you will notice a free use of yellow and purple, yellow predominating in the parts representing sunlight and purple in those showing shadow. Your first question is naturally, "Are such colors found in nature?" The answer might be made that the aim of the painter has been to give the strongest possible effect of sunlight that colors will give. So he has used freely strong light yellow and its complementary purple, not because nature's colors looked just that way, but because with these colors he can give at the same time the greatest contrast of both color and value. By this means he strives to suggest the blinding effect of sunlight. This use of color with various devices of handling the paint, to give the effect of outdoor light is one of the interesting contributions of modern times to the art of the painter.

SUMMARY: COLOR

Since the uneducated eye sees only bright colors, the first step toward acquiring the appreciation of fine color, is to learn to see the less obvious colors in nature and in art.

Nature uses her brightest hues rarely. Sunsets and brilliant autumnal pageants are of short duration. Bright flowers and birds are but small spots in the landscape. Art at its best has generally been sparing of strong colors. When they are successfully employed, it is with considerable surrounding neutral surface.

While there are many ways in which colors may be grouped effectively by an artist, to attain harmony he must manage to introduce some common factor into his color scheme so that all colors will be tied together in effect by a dominating color or a neutral.

Colors, through association of ideas, may suggest moods. Color has an emotional appeal. It is commonly accepted as a fact that red in large quantities is irritating to the nerves, and that grayish green or soft brown may be quieting.

While we are prone to think largely of the local colors of objects, local colors are changed in effect through various causes. A painter generally takes all these modifying influences into account. In decorative art, however, colors may sometimes be treated conventionally in practically flat masses.

In modern outdoor painting colors are sometimes used, not realistically, but scientifically, to produce effects of sunlight.

COMPOSITION

What Is Meant by Composition in Painting—To compose means literally to put things together. The purpose of composition in painting is the creation of a picture. The things which the painter puts together are lines and forms, and we might add the spaces which he leaves among the forms, for these spaces create in themselves lines and forms which have their effect in the composition.

Formal Composition of the Early Painters—If we glance at the compositions of the earlier painters, for example, those of Cimabue and his contemporaries, we shall see how rigid and conventional the painter's art was at that time. Nevertheless, such a composition as Cimabue's famous Madonna is in certain respects excellent, and in a simple way exemplifies fundamental principles which must always be followed in certain decorative types of pictorial work. First there was the central group, the Madonna holding the Child. Second there were three angel figures at the left, balanced by three angel figures at the right.

In childlike fashion, the Madonna is made large because she and the Child are of course all-important. The angels placed in a vertical row are small. Each angel is slightly different in pose and in details, but they are very similar. The whole composition is an example of pictorial balance approaching very near to symmetry.

The Formal Type of Composition Modified—If you look through the Madonna compositions, the altar pieces of the Italian painters, you can see how as time went on their compositions became less and less formal, they got further and further away from the convention and nearly symmetrical arrangement which had long been used, and yet they kept a perfectly balanced composition with the central figure of the Madonna. If you compare the Sistine Madonna by Raphael with the Cimabue Madonna, you will see how wide apart are the two in most respects and yet that each is a formal arrangement on a central axis.

For certain spaces, for example, a central panel or the end of a room, the painter is practically forced to adopt the type of compositions we have been discussing.

Study of a Supreme Example of Formal Composition—We will consider an example involving a much greater problem, many figures and wonderful light and shade. Look at Titian's Assumption of the Virgin first with your eyes nearly closed so that you can see at a glance the leading lines and masses. You will see three principal masses, the dark mass of the figures at the bottom of the picture; the festoon-shaped mass of the angel throng supporting the Madonna on the clouds; and the smaller mass at the top containing the figure of God, the Father. The general symmetry of the whole composition is perfectly obvious, but the pose of the Madonna and the arrangement of the drapery are wonderfully free. In fact the freedom and dramatic action of the figures throughout the picture at once impress us. Here is a formal composition, most informal in its details; and yet a little study will show how carefully the figures in the lower group have been composed to balance, and to lead the eyes up from this group to the rising figure of the Virgin. Every line helps. Then all the lines of the central mass lead finally to the top of the picture. Our eyes are made to rise with the Madonna from earth to Heaven. Now let us consider the light and dark of the picture. The large dark mass is at the bottom; the central mass is a brilliant play of light and dark, the figure of the Virgin



EXCOMMUNICATION OF ROBERT THE PIUS
BY J. P. LAURENS.

coming out in strong relief against the large light space of the picture; and the upper mass is not so dark as to attract too much attention, but is dark enough to serve in the general arrangement. Titian was a great colorist and this picture is a wonderful example of color composition, but to study the color we should be before the original in the Academy, Venice. As a beautiful composition of line and of light and dark, it will repay repeated study in the reproduction.

A Story-Telling Composition—The formal type of composition which we have considered is perhaps first decorative in its aim and secondly pictorial. We will now examine a modern painting, an easel picture by Laurens (French contemporary) which is strictly pictorial in aim. The subject is taken from French history. Robert the Pious was king of France about the year 1000 A. D. and for marrying a relative, Bertha, he was excommunicated by Pope Gregory V and sentenced to do penance for seven years. The painter has chosen the dramatic moment just after the delivery of the Pope's message. How well the whole feeling of the picture conveys the idea! Now let us see how far the arrangement of lines and masses helps the mood of the picture. The large empty hall is expressed by the long lines of floor and throne leading off to the right, where the representatives of the church are just disappearing. The upright oblong of tapestry behind the throne helps to isolate the figures of king and queen. The great candle, emblem of the church, lies prostrate and extinguished. It points accusingly directly toward King Robert, while its curling smoke leads the eye over to the departing churchmen. Other lines lead our eyes to those of the guilty king, the lines of the patterned stone floor that run parallel to the candle, the king's sceptre which he has dropped to the floor, and the long lines of the figure of Bertha who clings to her husband in fright. The king is the center of interest of the picture and everything in the composition is arranged so that our eyes constantly return to the king's face with its haunting expression of mingled fear and defiance of the church and of love for his queen. The picture is a fine example of unity and of the domination of one center of interest. While the line composition of the picture has been dwelt upon, the darks and lights are no less a factor in directing our eyes and fastening our attention. The light dress of the queen placed beside the dark robe of the king forms the strongest contrast of the picture and so forces



A TYPICAL LANDSCAPE
BY I. R. COROT

us to look first at the royal pair. Other lights and darks of the composition are skillfully balanced and made of subordinate interest. The balance of this composition, although not accomplished by the obvious means such as we have found employed in the bi-lateral arrangements of the Italians, is a perfect balance. Every line and spot is thoughtfully and skillfully placed to help the structure of the picture.

Composition Must Be Practiced by the Portrait Painter and by the Landscape Painter—You may think, however, that the painter of a portrait or of a landscape is not concerned with composition. A little thought and the careful observation of fine examples of landscape and of portrait art will convince you that in both composition is of the utmost importance. For an example of splendid composition in portrait art, study Titian's "Man With the Glove." Notice how wonderfully the artist has arranged the pose and the placing of the head and body upon the canvas. Study the simplicity of the leading lines of the picture and see just how darks and lights are balanced. If you doubt that that picture was consciously arranged on the canvas, trace the masses and then try placing the head slightly higher or lower or more to right or left and see whether these changes make a difference or not.

A successful landscape, no less than other subjects, must emphasize one object, must express one idea. A landscape, for example, may be painted principally for the sky. Then the sky must dominate the composition, and other things must be subordinated. The camera does not choose certain things for emphasis, and so a photograph is seldom completely satisfactory as a picture. Compare Corot's landscapes with the best photographs of landscapes that you can find, and you will be convinced that Corot was a great composer. Trace the principal outlines of one of Corot's landscapes and you will not doubt that the lines were arranged by him to give unity of effect. Place the photograph of the landscape at some distance so that the masses only are evident, and make a sketch in brush and ink of the general shapes of the darks. These exercises should help you to appreciate the meaning of composition of line and of mass in landscape.

Summary of the Topic—Composition in painting amounts to the arrangement of lines, values and colors for the purpose of making a picture.

A composition may be balanced formally or informally, according to the aim of the painter, but in either case he must attain unity. There must be a dominating idea, a central interest.

The eye is directed in a picture by the composition of lines, and by the composition of masses of dark and light, for the eye is compelled to follow the principal lines and to see first the strongest contrasts of dark and light.

Every picture that is worthy of being regarded a work of art involves composition. Even the artist who paints directly from nature must pick and choose, emphasize and subordinate. This becomes an act of composition, although sometimes it is practiced in part unconsciously.

Suggested Exercises in Graphic Analysis—1. Make a tracing of the leading lines from a formal composition.

2. Make a tracing of the leading lines from an informal composition.

3. Paint roughly in ink the masses of dark, making a sketch of the "spotting" of Titian's Assumption of the Virgin."

4. Make a tracing of the leading lines of a portrait showing its line composition.

5. Make a tracing of the leading lines of a landscape showing its line composition.

6. Make a sketch of the dark and light composition of a landscape by Corot.

ARCHITECTURE AND THE INDUSTRIAL ARTS

Architecture Distinguished from Mere Building—The “science of the artist” as well as the knowledge of the builder are necessary in the production of a structure that properly can be called architecture. The old authorities tell us that good architecture should possess firmness, fitness and beauty. In other words, whether great or small, a nation’s capitol or a country cottage, a building may be considered seriously as architecture if it is well constructed and suited to its use, and also beautiful in form and color. If the aesthetic aim has been omitted it is a building and nothing more.

An Interest in Architecture Should Begin in the Home Town—Probably to most well educated persons, especially to those who have traveled abroad, the word architecture calls at once to the mind’s eye the world famous buildings; the Parthenon at Athens, St. Paul’s in London, and the great Gothic cathedrals of England and of France; the Coliseum at Rome, and the Opera House in Paris; the Roman Forum and the Parliament Houses on the Thames; and the many others well known in photographs and engravings. Now it is certainly well for you to become familiar with pictures of the world’s great buildings, including those of our own country, such as the Capitol at Washington, the Boston Public Library, the Columbia University group, the Union Station in Washington and others. But your real interest in architecture begins when you first look with interest at the buildings in your own town and commence to take keen pleasure in looking at the good ones every time you pass them. Most towns have some good architecture, and the interest you can develop in a building which becomes thoroughly familiar to you, is pretty sure to be more genuine than the interest which you may develop through the study of photographs alone of the great masterpieces of architecture.

Domestic Architecture—Since everyone of us must live in a house of some kind, we ought all to be interested in domestic architecture or the architecture of dwellings. Yet it is safe to say that everywhere in the United States there are far fewer homes that are worthy to be considered as architecture than those which

must be classed merely as buildings, often as very ugly buildings. This unfortunately is true even of houses which cost a great deal to build, especially of many ornate structures erected in some cases a generation or more ago. Taste has been improving and today in most cities and towns there are at least some dwellings that are worthy of study as types of good American domestic architecture. If you look for them you can find houses which are beautiful and which cost comparatively little, for a small cottage well designed may be appropriate and charming. A more stately and impressive character is of course in keeping with the mansion of the millionaire. The architecture of apartment houses (the homes of so many city dwellers) has been improving in some cities, and occasionally even among the more modest buildings there appears one of considerable charm. By rights we should expect the better architecture where the more money has been spent, but too often lavish expenditure has failed to produce beauty. This shows how important it is for each person to train his taste so that he can know how to get the most beauty as well as the most convenience for the money he spends.

How to Study Buildings—How shall you learn to judge of architecture and to become appreciative of the best buildings wherever you see them? The first step is to make an independent choice as often as you can. After you have made your choice try to find good reasons for your preference. A good plan would be to choose six of the best residential streets in your town, and walk through each in search of the most beautiful house in that street, taking one street each day for six successive days. Having chosen according to your own judgment the six best houses, take a fresh view of each of the six and make a decision as to which is the best one of all. In choosing, it will perhaps help you to think of some of the principles which have been discussed in connection with pictorial art, although it may not at first be easy for you to apply what you have learned to your judgment of an architectural composition. Nevertheless, remember that the architect composes lines, masses of light and dark and colors, no less than does the painter, although the materials used are so different. In your early selections of buildings, it is not likely that you will always select wisely. But as time goes on you will use your eyes more intelligently, and you will gradually find it easier to make a choice and to justify your choice with good reasons.

After the study of dwelling houses, a similar plan can be followed in the study of the public buildings of your town.

Become Familiar With the Best Examples—As you become interested in the houses of your own town, you will find that pictures of good domestic architecture in other places will take on for you a new interest. Several of the popular magazines as well as those devoted to architecture alone, are constantly bringing out pictures of the interesting houses that have been recently built throughout the country. With these you should become familiar for they will help to give you standards of comparison by which you will make your judgments. You should also become acquainted with some of the best examples of the old Colonial or Georgian houses of New England and the South, for these are perhaps the most consistent and beautiful dwellings that have been built in the United States. Beside these, you should look up in the books on architecture and travel pictures of some of the beautiful houses of other times and countries. For example, you should know the half timber houses and thatched cottages of England, as well as the stately homes of the English aristocracy. Look up the delightful houses of old Germany—of Nuremberg and Rothenberg—and the Chateaus of France. Try to realize how these different styles of building grew out of the needs of the people who built them, and also in part from the nature of the materials which they had to use.

Some Principles of Architectural Composition—As you become used to looking for beauty in buildings of all kinds, you will be prepared to understand some of the principles which must always underlie good architecture.

(1) Not only should a building be suited to its use, but in its masses and in its details it should be in character with its use. For example a beautiful church or cathedral expresses the idea of worship, and its portals seem to invite you to enter. A country house should suggest by the character of its lines the idea of shelter and protection from storm and from sun. A city dwelling should give one a sense of being a retreat from the noise and distractions of city life. So does every successful piece of architecture interest us and claim our attention by its expression of the character of its use.

(2) A building should harmonize as much as possible with its natural surroundings. For example a stone church upon a

rocky hill should appear to grow out of the rock. A country house both in form and in color should impress us as belonging to the landscape, as is true of so many English cottages. How do we see this principle disregarded in the obtrusive structures of our own country-side!

(3) Like other works of art, a piece of architecture should impress us as a unit, as one thing, not as several. All the parts should be related to each other and to the whole, so that the whole appears just as truly one thing, just as organic as does a fine tree. If in looking at a building you see some projection (perhaps a tower or a dormer) that seems too insistent, then you should raise the question as to whether that projection is not a mistake.

(4) Fine proportion is one of the chief essentials of architectural composition, but only by making many comparisons will you become sensitive to fine proportion. Make an attempt to sketch rapidly from a photograph the general outlines of the Parthenon or the main lines of the facade of the Notre Dame of Paris, and then compare the proportions of your sketch with those of the photograph. The chances are that no argument will be necessary to prove to you that the proportions of these masterpieces are finer than you have been able to suggest them in your sketch. In many a dwelling house a slight variation of the proportions—possibly a little greater overhang of the roof, or windows a trifle wider or smaller—would have changed a commonplace house into one of charm.

(5) Ornament usually should be used with reserve, and to glorify important parts. In the best examples of our Colonial dwellings, the ornamental touches were generally confined to the fine moldings and to the accessories of the front entrance, such as the porch with columns, the leaded side-lights and fan-lights, and the panelled door with its decorative brass latch and knocker. In a cathedral exterior, the main doorways generally receive the greatest share of sculptural adornment.

The Arts Connected With Furnishing the Home—Thus far in discussing architecture, exteriors only have been mentioned. That is the part of the building that is seen by everybody. Nevertheless we should all know that the interior is the more important part from the standpoint of use. The inside of a house is the part we live in, and a good designer of houses begins with the plan and fits the outside of the house to the inside requirements.

A well thought out dwelling house should have a charming exterior suggestive of comfort and beauty within. The rooms should be attractive when seen singly or in relation to each other. This necessitates not only good architectural design but appropriate and well considered furnishings. Thus in considering the architecture of the house, we are forced to consider a number of the industrial arts—furniture, rugs and hangings, wall papers, table dishes, pottery for decorations, etc. It has been truly said that "Architecture is the mother of all the arts."

How to Acquire Good Taste—Since practically everyone must sooner or later buy home furnishings of some kind, it is evident that good taste in their selection should be generally cultivated. This is not more difficult than to acquire good judgment in other matters. The power to judge is acquired by exercising the judgment. When you look at a display of furniture in a store window or elsewhere, make a choice and then find your reasons for that choice. Do the same thing in the case of rugs, of pottery, and of the other industrial art products. Take advantage of museum collections to study the best examples of different periods. Learn something of the history and of the processes of important crafts. Then you will come to see how in every craft an object in order to be satisfactory must be so made as to serve its purpose perfectly, to bring out the beauty of the material fully and to result in fine form and color. Among chairs, for example, how many times are found failures in all these respects—chairs hard to sit in, hard to move, and hard to live with because they are lacking in grace of form or appropriate treatment of the wood! But what a delight is a really fine chair!

Summary—It seems reasonable for everyone to be interested in architecture, and especially in the architecture of dwelling houses. An intelligent interest leading to good taste in architecture and in furnishing can be acquired only by a conscious exercise of the judgment. The habit should be formed of choosing the best from a number of examples whenever an opportunity presents itself.

Museums and libraries should be used to acquire knowledge of the best examples that the world possesses in the various arts. This knowledge of fine examples, together with some understanding of the processes of the crafts, will help to develop good taste through a growing appreciation of a few great fundamental principles which never change with the fashions.

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Jack, Geo.	Wood Carving.	Appleton, N. Y.
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	Ars Una Series (All Periods and Countries).	Scribner, N. Y.
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